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ABSTRACT

This manual on the vocational education operations analysis process is designed to provide vocational administrators/coordinators with an internal device to collect, analyze, and display vocational education performance data. The first section describes the system and includes the following: analysis worksheet, data sources, utilization, system components (program/services, objectives/desired outcomes, and program costs), and time and sequence of program analysis. The second section provides instructions for completing the operations analysis worksheet (fourteen steps). The third section discusses the interpretation of the analysis process, focusing on three questions: (1) Is the program effective?; (2) How efficient is the program?; and (3) Is the program cost effective? Also included in the interpretation section is a paper by Lois-ellin Datta entitled "Inside the Black Boy: Process Evaluation as a Part of Cost/Effectiveness/Benefit Analysis." Provided as attachments are instructions for completing the program/course invertory (PCI) and vocational education analysis worksheets. (JH)

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California Occupational Information Coordinating Committee

ED176063

VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Mailing: Ventura County Superintendent of Schools Office, 535 E. Main Street, Ventura, CA 93009

PREFACE

The COICC staff working in conjunction with the California State Department of Education, Vocational Education Section, Field Operations Unit and Indiana University, Program Area, School of Education as well as others have developed this analysis process and manual. It represents a unique blend of resources including the Indiana University Cost-Effectiveness Analysis developed under the National Priority Training Program; the previously developed COICC Monitoring System; and the extensive research efforts of many individuals.

The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" presented here was created to provide vocational administrators/coordinators with an internal device to collect, analyze, and display vocational education performance data. This information will enable an administrator to make appropriate adjustment(s) in the operations of vocational education programs and/or services.

For further information regarding this publication and the California Occupational Information System contact your State Department of Education Regional Field Office at the following addresses:

Coastal Region
1111 Jackson St., Room 4075
Oakland, CA 94607
(415) 464-0955

Central Region
1919 21st St.
Sacramento, CA 95814
(916) 445-9570

Southern Region
601 W. 5th St., Suite 1010
Los Angeles, CA 90017
(213) 620-3900

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INDIANA PERSONNEL

Dr. Jin E. Kim
Assistant Professor & Project Director
Department of Vocational Education
School of Education
Indiana University

CALIFORNIA STATE DEPARTMENT OF EDUCATION

Roland Boldt
Administrator, Field Operations
State Department of Education
Sacramento, CA

Robert Eissler
Coordinator, Fiscal/Statistical Management
Vocational Field Operations
State Department of Education
Sacramento, CA

PROJECT CONSULTANTS

Dr. Arthur Smith, Director
Vocational Education & Regional Occupational Program
Office of the San Bernardino County Superintendent of Schools

Lawrence G. Lloyd
Associate Dean of Instruction
Vocational Education
Moorpark Community College
Moorpark, CA

PROJECT STAFF

John Van Zant - COICC Director
Gail Robinson - Principal Investigator and Writer
Shelah Bernstein - Media Specialist
Gale Kelly - Clerical Support
Jim Nemeth - Planner
Susan Hardy - Editor

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INTRODUCTION

How many times have you, as a program administrator, ever asked an associate, "How are your programs doing?" and received the following answer? "Pretty good; student enrollments are way up this year." Far too often, student enrollment is the only criterion used for determining the status of a given instructional program. While important, this is no longer a sufficient indication of good program performance, especially in view of current socio-political trends.

The keyword in education for the seventies and perhaps the rest of the century may well be "accountability". A study of recent legislative trends and voting patterns reveals that the public and their representatives are asking vocational educators to be responsible for improving program effectiveness and to provide a rationale to support the dollars needed. In essence, these groups are asking: (1) what is to be achieved? (2) who is responsible? (3) what was actually achieved? (4) what resources were used to achieve the results? (5) what steps were taken to get the intended results? (6) what will happen in the future?

Exemplary of this situation are the Education Amendements of 1976 (PL 94-482 and 95-40) which calls for State and local planning and accountability for vocational education programs. There are a number of sections in these amendments which require specific kinds of data to be collected and analyzed at the local, State and Federal levels. The following table provides insight into the scope of these information requirements.

EDUCATION AMENDMENTS OF 1976 (PL 94-482 and 9540)

Section	Subject
105 and 112	Specifies a number of program and fiscal audits and evaluations to be conducted at the Federal, State and local levels.
106 and 107	Specifies information to be included in funding applications and Five-Year Plan.
108	Describes the required Annual Program Plan and Accountability Report.
161	Establishes the Vocational Education Data System and the Occupational Information System to design, implement and operate a National vocational education information and accounting system.

Aside from legislative mandates and other external pressures, most vocational educators want to be assured that their programs are performing in an effective manner. They also desire a means to justify their decisions and operational procedures.

From a management perspective, the accountability concept places heavy emphasis on the attainment of specified objectives as well as the allocation and utilization of resources. It requires decision-makers to take a critical look at their programs and to implement only the most feasible, suitable, and acceptable means for accomplishing a given purpose with the resources available. Choosing among the feasible alternatives so as to maximize the results (effectiveness) with a given amount of resources or to produce the same level of effectiveness at the lowest possible cost is a primary concern among most decision-makers. Making the most appropriate choice involves the following "planning process":

1) Stating of desired outcomes. It makes little sense to try and maximize results or minimize resources without first clarifying the desired target objectives to be attained from the vocational instructional program/service.

2) Determining constraints. Constraints are defined as limitations imposed by the needs and wants of society. Choices that are preferred must be deemed possible to achieve. In most instances, non-feasible alternatives are determined by constraints. Some important kinds of constraints include technological constraints, policy constraints, socio-political constraints, legal constraints, and of course, resource constraints.

3) Investigating all feasible alternatives. Those alternatives deemed feasible must be thoroughly investigated to determine the most appropriate one. This involves identifying the anticipated costs and effectiveness for each alternative, as well as the gains and benefits that accrue to each of the different courses of action.

4) Choosing and implementing the most appropriate alternative.

As a means to optimize the relationship between resources and results, decision-makers must have a reliable method which allows them to systematically analyze program performance in relationship to costs. Such a system would result in the improvement of many services or functions needed for the effective administration of vocational programs/services. Some of the benefits of this type of system are that it would:

1) Enable administrators to plan more effectively.

2) Maintain accurate financial records for the operation of a program/service.

3) Facilitate an analysis of resource use with emphasis on the requirements and educational policies inherent in the budget.

4) Insure that the available resources will be used for the benefit of the students.

5) Enable the school district to report to various local, State and National groups concerning the financial and operational aspects of the programs.

It was in this context that work was initiated to develop the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS". Since accountability is measured by comparing stated goals and objectives to actual program performance, the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" was designed to provide the local school and/or district administrator with a tool to effectively and routinely satisfy this requirement and at the same time provide the data needed to assist in the planning of vocational education programs. In addition, this process maintained the concept of utilizing existing data collection systems whenever possible, thereby eliminating unnecessary expense and duplication of effort. The analysis process presented here utilizes the data contained on existing student and program reports required by the State.

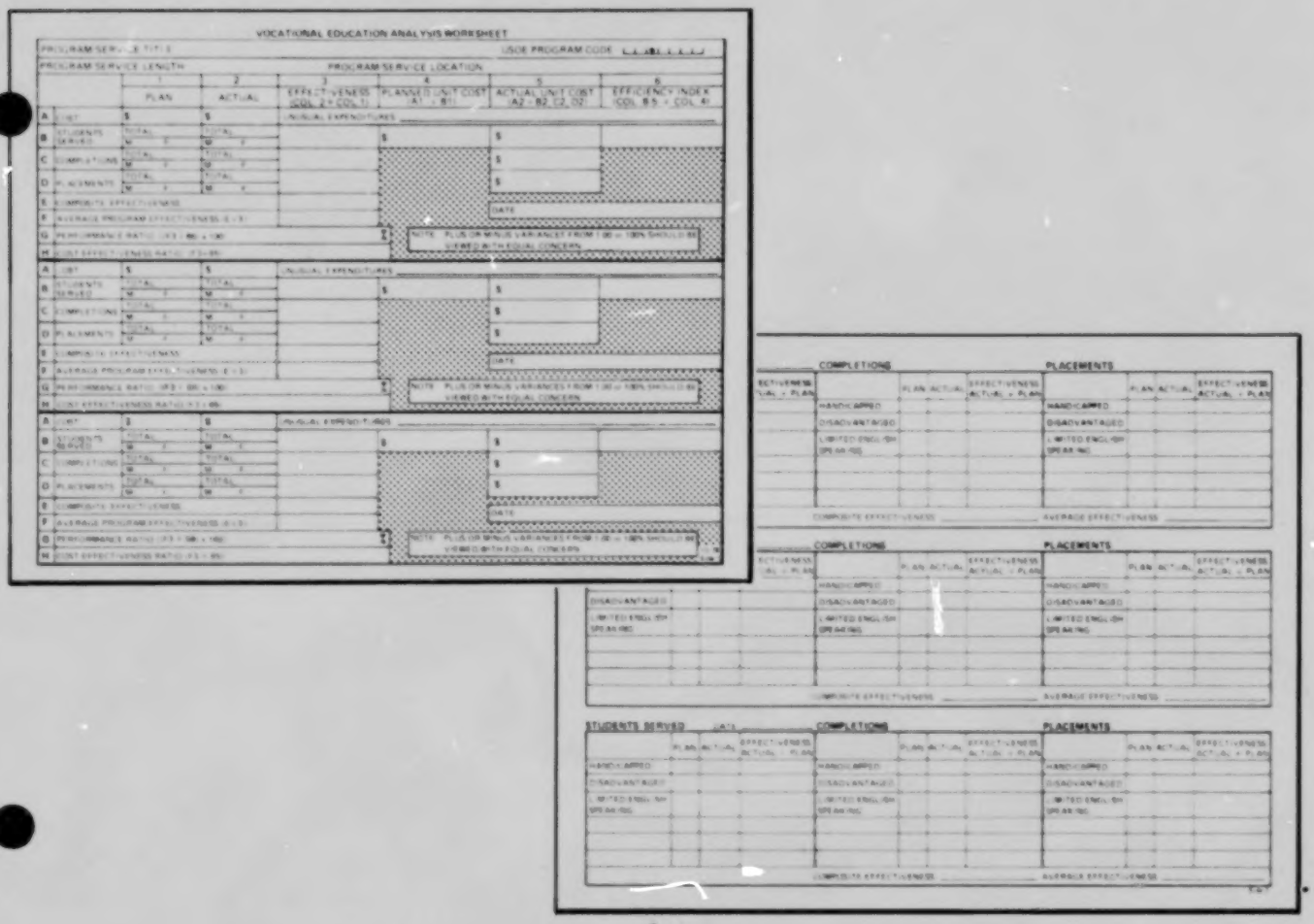
The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" is much more than "just another report"; it is a diagnostic procedure designed to be used as an internal device to provide local educational agencies, local administrators, and local boards with feedback information to assure improvement and adjustment to a changing educational environment.

SYSTEM DESCRIPTION

The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" presented here is only one of several analysis techniques which can assist in solving the problems of choice related to effectively planning vocational education programs/services. It requires the definition of measurable objectives, the identification of alternative ways of achieving the objective, the identification of anticipated cost and effectiveness for each alternative, and the identification of the optimum alternative which potentially achieves the desired objectives for the educational activities of a school.

A. VOCATIONAL EDUCATION ANALYSIS WORKSHEET

The heart of the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" is the "Vocational Education Analysis Worksheet." It was designed as an instrument to record the computations and findings of the analysis process.



Side One of the analysis worksheet is divided into two parts: (1) general program information; and, (2) the actual computations and findings. The general program information identifies the specific instructional program/service, its length in time, the physical location, and the date this process is being conducted. The remaining portion contains the spaces needed for entering planned and actual program performance data and the results of simple mathematical calculations. Side Two of the worksheet provides for the inclusion of any additional items the local administrator may wish to include in the analysis process not represented on Side One.

The worksheet format permits the comparison of a single program's performance at different points in time, as well as providing two numerical measurements which are useful in determining the most effective programs among the total vocational offerings.

B. DATA SOURCES

All data needed to complete the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS WORKSHEET" are obtainable from existing State reports. Within public vocational education systems the data can be obtained from the VEA Grant Application forms, the VEA Projected Enrollments in Vocational Education, the VEA 45s, 48s, and the VEA Claim Forms. If the data are not in the exact format needed for the analysis process, it can be ascertained from the base data used to compile these reports.

C. UTILIZATION

Information regarding program effectiveness and costs can be used for various purposes. A brief description of some of these follows.

1) Resource Allocation

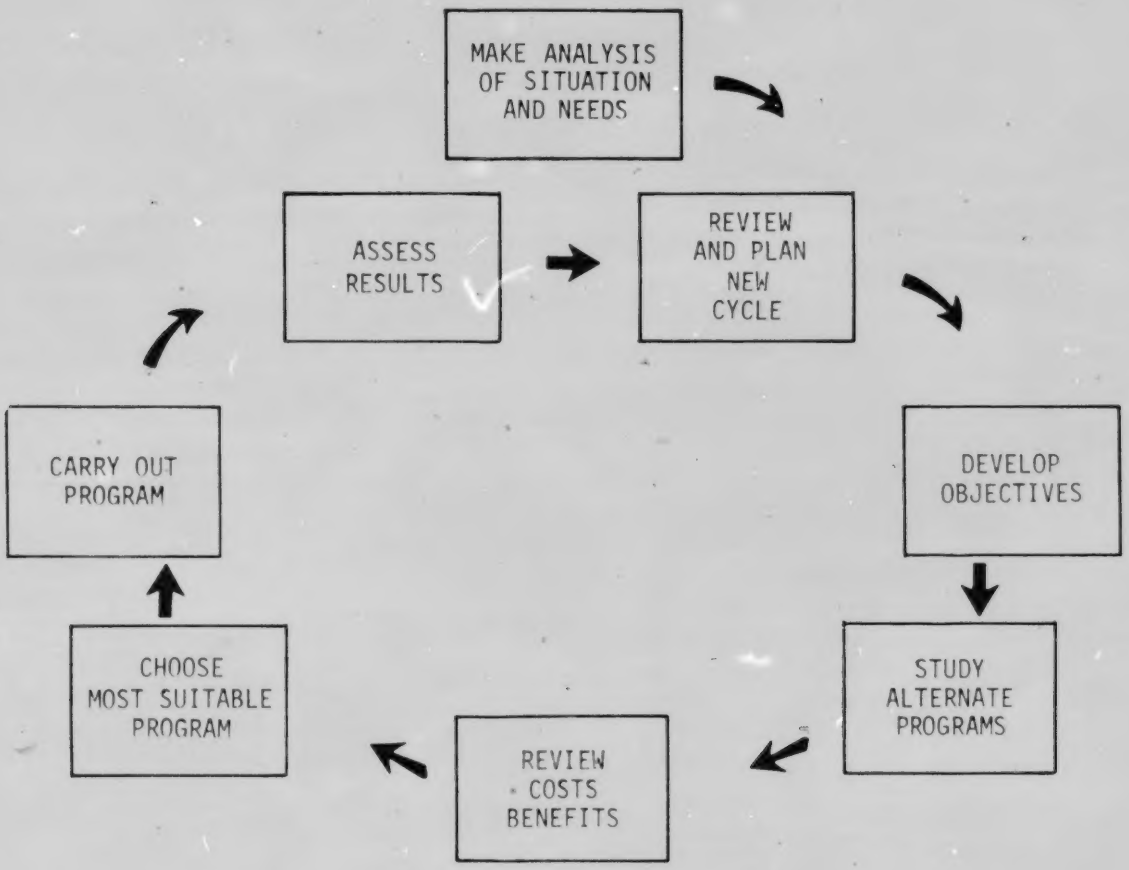
In a time when school costs are rising rapidly and the competition for tax dollars is great, the task of deciding which vocational programs are most in need of increased

financial support is a critical problem. The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" may be used to provide decision-makers with a useful and rational criterion for allocating and/or utilizing a given amount of resources among numerous competing needs. An analysis of this type, that relates program performance with costs, can be used for the purpose of comparing vocational education programs with other types of programs/services operating at the institution or to identify the most desired program among competitive vocational programs. As a result, the analysis could increase economic efficiency by allocating a given amount of resources to the most deserving of vocational education programs. Economic efficiency does not mean conducting education on a "least-cost" basis it means the achievement of a given objective with the least cost or the maximization of a given objective with a given cost.

2) Vocational Planning and Evaluation

The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" is very useful in the development, planning, and evaluation of vocational educational programs/services. The planning of any educational program requires the identification of various activities and services needed to achieve predetermined objectives. Theoretically, there may be an infinite number of alternative methods available in which these activities/services can be mixed to accomplish the specified objectives. Some of the most obvious alternatives for a vocational program may be: a regular day program, a part-time evening program, on-the-job training or apprenticeship type programs, and/or the modification of required courses and their content. Each alternative should be investigated in terms of its costs related to its benefits and the most suitable alternative implemented.

For evaluation purposes the analysis process provides administrators with useful information on which to evaluate existing programs in terms of program goal attainment as compared with associated costs. This information is of value in determining if existing programs/services should be expanded, continued, modified, or deleted. The July 1978 publication, Guidelines for Occupational Program Planning and Evaluation Handbook provides a procedure for modifying and terminating occupational programs. Copies are available from the State Department of Education and/or the Chancellor's Office in Sacramento.



PLANNING AND EVALUATION CYCLE

3) Policy Decisions

Information on costs of education can help educators formulate sound educational policies. For example, policy decisions regarding expanding or phasing out existing educational programs/services or the introduction of new vocational education programs require information regarding the fiscal implications of such decisions. The monetary consequences of such policy decisions, along with other relevant information such as short- and long-term labor market supply and demand, provide rationale for supporting vocational programs/services.

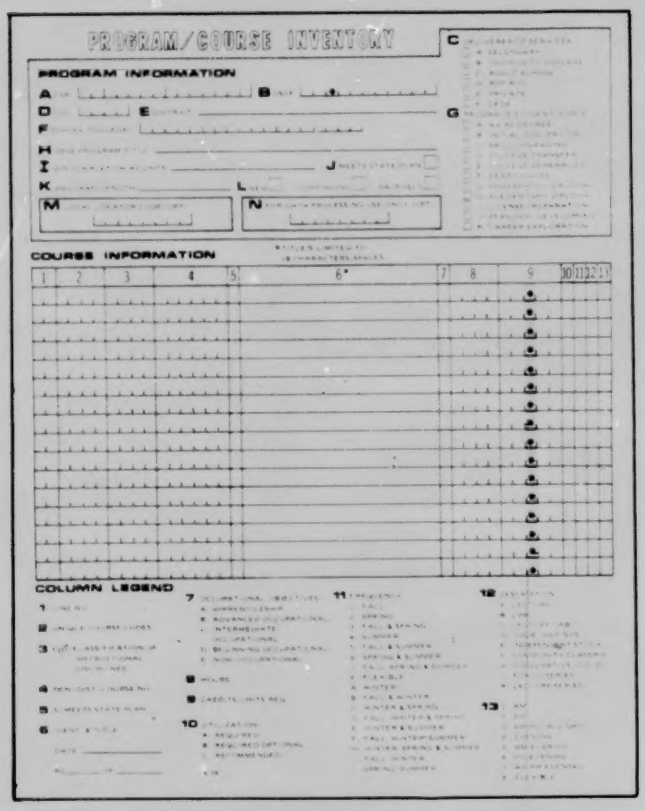
For example: since many educational institutions are currently experiencing financial difficulties, educators are being forced to take a hard look at those policies which concern course offerings, course scheduling, class size, faculty load, independent studies, and programmed instruction. The fiscal implications of such alternatives may help in improving the formulation of sound policies on such matters.

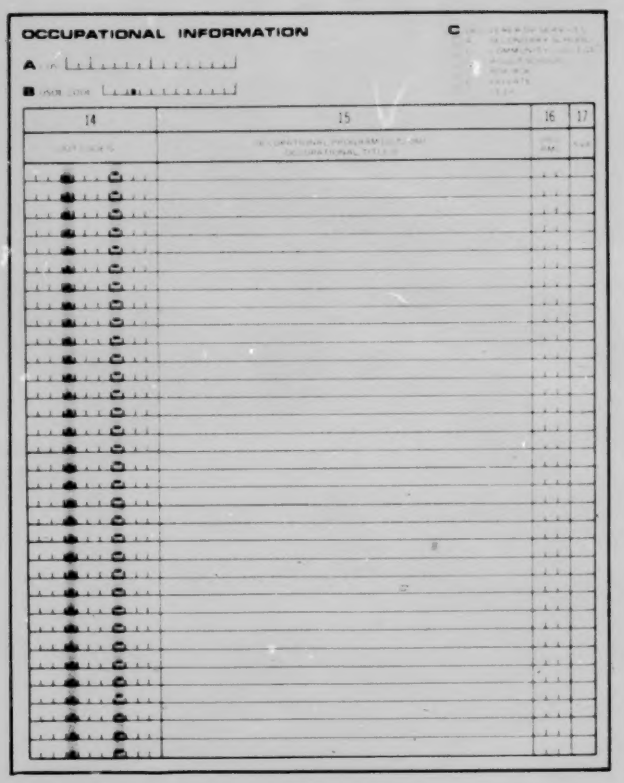
D. SYSTEM COMPONENTS

The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" which relates the total costs of a program to its quantified levels of performance, is based upon the relationship between three major components. These are: 1) vocational education programs/services, 2) objectives/desired outcomes, and 3) program costs.

1) Vocational Education Programs/Services

According to the National Center for Educational Statistics, a vocational program is defined as a planned sequence of courses, services, or other educational activities designed to prepare individuals for employment in a specific occupation or cluster of closely related occupations. The Program/Course Inventory Form (PCI), shown on the next page, is a recommended means of defining a vocational program by the courses it comprises and its occupational objectives.





The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" is directed primarily toward analyzing vocational instructional programs which are operated within the local school or school district. These are usually listed by six-digit USOE program codes, i.e., 01.0101 Animal Science or 14.0103 Cashiers. The publication, Standard Terminology for Curriculum and Instruction in Local and State School Systems (Handbook VI), classifies and defines instructional programs by USOE code and should be referred to for correct identification. The USOE codes found in the Handbook have ten positions, however in most cases, only the first six positions are used to define the program.

Although the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" was primarily designed to review existing operational programs and to assist in the planning of new programs and/or alternatives, it can also be used to review and analyze various other types of activities/services being conducted at the local institution. For example, as an administrator it may be of importance to analyze and review the performance of the total vocational education effort in meeting the needs of handicapped students. In this case, objectives expressed in quantitative terms would be set for the enrollment of a certain number of handicapped students, the completion of a certain number of handicapped students, and the anticipated placement of a certain number of handicapped students for all vocational education programs in the instituion. At the end of the period being studied, actual performance data would then be entered and an analysis could then be done to determine the effectiveness of serving the handicapped in regards to performance and costs.

The following list includes, but is not limited to, those "special programs" and "student characteristics" the local administrator may wish to analyze:

Instructional Programs	Disadvantaged
Cooperative Vocational Education	Handicapped
Work Study	Non-English-Speaking
Placement Services	Displaced homemakers
Support Services for Women	Adults
Day Care Services	Voc. Work Experience Education
Voc. Guidance/Counseling	

This procedure could also be used for those special programs and characteristics within a single six-digit USOE program. For example, the number of adults enrolling, completing, and being placed in a real estate program or the number of displaced homemakers in a welding program could be analyzed.

2) Objectives/Desired Outcomes

The first step in conducting the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" requires the stating of objectives/desired outcomes. These are defined as the expected results or specified targets which are to be obtained from the vocational program/service and are to be expressed numerically.

A review of the Federal vocational education legislation indicates that the purpose of vocational education is to provide vocational training or retraining which is to be realistic in light of actual or anticipated job opportunities for gainful employment. The legislation also states that efforts are to be made to overcome sex discrimination and sex stereotyping in vocational education programs. Based upon the above-mentioned Federal requests and for the purpose of developing a standardized procedure, the following objectives/desired outcomes have been identified as the basic areas of concern to be analyzed for cost-effectiveness purposes. These are:

Students Served	- male and female
Program Completers	- male and female
Program Placements	- male and female

However, due to other items of legislative intent specified in the new Vocational Education Amendments and differences in local community demands and student characteristics, the local administrator may wish to include other objectives/desired outcomes in the analysis process. For example, in addition to reviewing a specific instructional program's performance based solely on enrollments, completions, and placements, an administrator may wish to know how the program, identified on Side One, is performing with regards to meeting the needs of the handicapped and/or the disadvantaged, or how many adults are being served, completing and/or placed in that program.

Additional areas of concern may include, but are not limited to the following:

Adults	Cooperative Vocational Education
Disadvantaged	Handicapped
Leavers without marketable skills	Limited English-Speaking
Non English-Speaking	Placement Services
Support Services for Women	Work Study

Side Two of the "VOCATIONAL EDUCATION ANALYSIS WORKSHEET" provides the necessary spaces to record all planned, actual, and effectiveness data for any of those additional items the administrator may wish to include. When utilizing this side of the worksheet it is important to remember that Side Two counts the same students who were enumerated on Side One, a duplicated count. Side Two identifies those special characteristics associated with the same enrollments, completions, and placements contained on Side One. For example, suppose that thirty-two (32) students were enrolled in a foods service program. Of these thirty-two (32) students enrolled five (5) were previously identified as being handicapped, three (3) were identified as being disadvantaged, twelve (12) were enrolled in vocational work experience, and all participated in the available placement services.

3) Program Costs

Program costs are defined as those expenditures necessary to operate a vocational instructional program/service at the local school and/or district level. For the analysis process presented here, program costs are to be aggregated at the six-digit USOE program level and are to include both Federal and non-Federal funds*.

The amount of cost data needed to adequately represent program costs may vary from a minimum of identifying only direct, direct support, and indirect support costs to a maximum of including all capital outlay expenditures. Capital outlay expenditures are those costs that result in the acquisition of fixed assets or additions to fixed assets. They include expenditures for sites; improvements of sites; buildings; improvements of buildings; building fixtures; service systems; and the purchase of initial or additional equipment. When evaluating an individual vocational program or comparing two or more programs within a single school, it may not be necessary to consider capital outlays. However, if the results of this analysis process are to be used in making decisions

* Non-Federal funds include State aid and local dollars spent for the operation of vocational education programs.

pertaining to the comparison of vocational programs among schools, or in the selection of new programs which may need new facilities and/or equipment acquisition, then capital outlay may be a consideration in computing program costs. Thus, the amount of cost data required will depend on the purpose of performing the analysis process.

Several options are available for computing program/service costs. They are as follows:

Option 1) Current operating expenditures only. Current operating expenses include all object classification expenditures excluding the following:

1) expenditures for food services;
2) expenditures for community service;
3) object classification 4800 - Equipment and Equipment Replacements;
4) object classification 6000 - Sites, Buildings, Books and Media for School Libraries and New Equipment; and
5) object classification 7000 - Other Outgo, (except 7250 - Tuition for ROC/Ps).

These expenditures are analyzed without consideration of the present value of capital outlay costs.

Option 2) Inclusion of capital outlay costs. Capital outlay costs may be included in the total program costs by using any of the following methods:

a) Outright purchase costs. When capital outlay expenditures are paid for in full at the time they are acquired, the total purchase price could be included as an expenditure for the year they are purchased. It may be necessary to prorate this cost among both vocational and non-vocational programs or among several vocational programs. For example, three typewriters were purchased to be used by both Personal Typing (non-vocational) and the Typing II and III of the Typing Program. Therefore, some type of proration formula must be applied to reflect actual program expenditures. (See page 17 under direct costs for suggested methods of proration.)

WARNING: The inclusion of such large purchases in a single year or in an analysis period will drastically skew the entire analysis process for that particular time period. Special care must be taken to ensure proper interpretation.

b) Amortization. Most fixed assets have a legal or useful life. The useful life of any item depends upon such things as the frequency of its use; it's age when acquired; policy concerning renewals and replacements; the normal progress of the art, economic changes, inventions, and other developments within the industry and trade.

Under this method the total cost of the fixed asset divided by its expected useful life provides equal annual amounts that may by included in the program cost for as many years as the asset is expected to be used. For example, suppose that a printing press is purchased for $10,000 and is expected to have a useful life of seven (7) years with no salvage value at the end of seven years.

$10,000 ÷ 7 years = $1,428.57

For each of the seven years the analysis process is performed, $1,428.57 will be included as a direct cost.

c) Lease with option to purchase. Only that amount actually paid out on the lease purchase agreement during the program year or analysis period should be included in the program costs. This amount is to be charged to the appropriate subclassification under object classification 6000 - Lease Purchase Agreements or 4800 - Equipment Replacement if the equipment is a piece-for-piece replacement.

The rental of a fixed asset does not increase the asset and, therefore, is not charged as a capital outlay expenditure. Rentals are charged to 5600 - Contracts, Rents, and Leases. The lease of a fixed asset is usually for a period of one year or more. Title does not pass, therefore, the charges are to 5600 - Contracts, Rents, and Leases.

Option 3) Option 1 with special notation of capital outlay or unuusal costs. Compute the current operating costs as identified in Option 1 which deletes any capital outlay in the total program costs. Record any capital outlay costs and/or unusual costs in the space provided on Side One of the "VOCATIONAL EDUCATION ANALYSIS WORKSHEET." Examples of unusual expenditures that may be highlighted for clarification purposes only may include, but are not limited to the following items:

- facility modification or acquisition;
- any change in staffing patterns, such as team teaching introduced during an ongoing semester; and
- equipment.

The following list identifies the objects of expenditure classifications to be used in determining program costs.

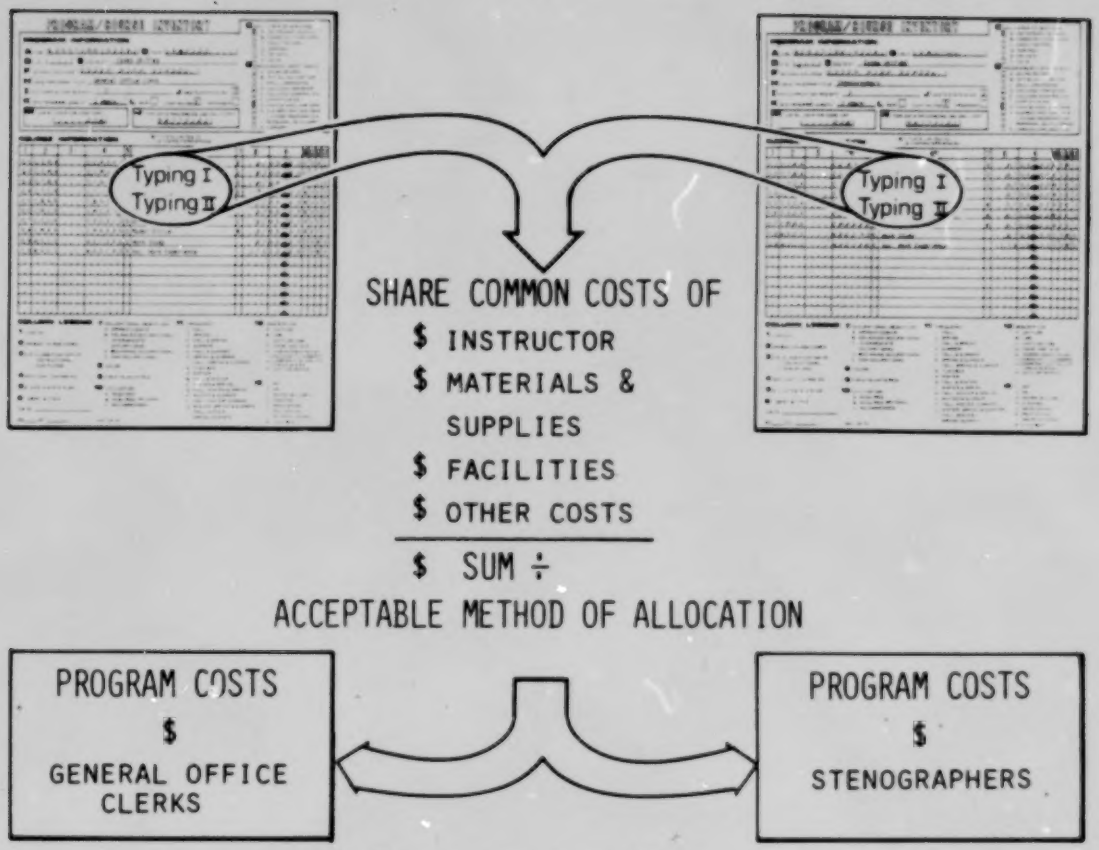
Item (Secondary)		Objects of Expenditures	Item (Postsecondary, Full-time Only)
1000		CERTIFICATED PERSONNEL SALARIES	
	1100	Teachers' Salaries	1200
	1200	School Administrators' Salaries	1200
	1300	Supervisors' Salaries	1200
	1400	Librarians' Salaries	1200
	1500	Counselors' Salaries	1200
	1600	Physical and Medical Health Salaries	1200
	1700	Superintendents' Salaries	1200
	1800	Other Certificated Salaries of District and County Administration Salaries	1200
	1900	Other Certificated Salaries	1200
2000		CLASSIFIED SALARIES	
	2100	Instructional Aides' Salaries	2200
	2200	Classified Salaries of County Superintendent and District Administrators	2100
	2300	Clerical Salaries	2100
	2400	Maintenance and Operation Salaries	2100
	2600	Transportation Salaries	2100
	2900	Other Classified Salaries	2100
3000		EMPLOYEE BENEFITS	
	3100	State Teachers' Retirement System	3100
	3200	Public Employees' Retirement	3200
	3300	Old Age and Survivors, Disability and Health	3300
	3400	Health and Welfare Benefits	3400
	3500	State Unemployment Insurance	3500
	3600	Workmens' Compensation Insurance	3600
	3900	Other Benefits	3700
			3900

4000		BOOKS, SUPPLIES, AND EQUIPMENT REPLACEMENT	
	4100	Textbooks	4100
	4200	Other Books	4200
	4300	Instructional Supplies	4XXX
	4400	Media Supplies	4XXX
	4600	Public Transportation Supplies	4XXX
	*4800	Equipment Replacement	4800
5000		CONTRACTED SERVICES AND OTHER OPERATING EXPENSES	
	5100	Contracts for Personal Services	5XXX
	5300	Dues and Memberships	5XXX
	5400	Insurance	5XXX
	5500	Utilities and Housekeeping Services	5XXX
	5600	Contracts, Rents, and Leases	5XXX
	5700	Legal, Election, and Audit Expenses	5XXX
	5800	Other Services and Expenses for District-wide Administration	5XXX
*6000		CAPITAL OUTLAY	
	6100	Sites and Improvements to Sites	6100
	6200	Buildings and Improvements of Buildings	6200
	6300	Books and Media for New School Libraries or Major Expansion of School Libraries	6300
	6400	Equipment	6400
	6500	Lease Purchase Agreements	6500
7000		OTHER OUTGO	
	7250	Tuition for ROC/Ps	7250

* Capital outlay expenditure classifications.

Program costs are to be aggregated at the local or district level by determining the sum of the three major types of allowable expenditures - DIRECT, DIRECT SUPPORT AND INDIRECT SUPPORT. The distribution of these costs to specific vocational programs/services provides a means for assessing the true fiscal impact of operating the program/service and is critical in determining accurate cost-effectiveness information using this analysis method.

NOTE: To insure valid results for accurate interpretation purposes, the method for determining program costs must remain consistent for each program/service, as well as for each year the analysis is performed.



Direct support charges are those direct costs accumulated by the various support programs that are to be reallocated to the specific vocational program/service for services rendered. For example, the cost of transporting students is initially charged as a direct cost to the transportation department, but should subsequently be charged to each individual program and a credit made to the transportation department. Another example is the salary, or prorated portion of the salary, of a counselor who provides a specific service to a specific instructional program.

The following criteria may be applied to identify a charge as a direct support:

1) The costs of services are readily and reasonably identified as support to a particular program.

2) The administrator/coordinator of the using program usually has some control over, or responsibility for, the costs of services.

3) The costs of services in question would no longer be necessary if the using program were discontinued.

As identified in the California School Accounting Manual, direct support costs would occur as a result of the following types of support services being conducted within a school and/or school district.

1) Instructional Support Services: Activities/costs associated with assisting the instructional staff at the school level in the teaching process (does not include teachers and instructional aides). Examples of such costs are instructional administration (directors or supervisors of instruction, curriculum development for instructors, clerks, office supplies, etc.), instructional media (school libraries and audiovisual), and other school administration programs (principals, assistant principals, business services, equipment rental services, and other activities that have as their purpose overall administrative responsibility for a single school or several schools, i.e. not a district).

2) Pupil Services: Activities/costs which are designed to assess and improve the well-being of students and supplement the teaching process. These activities include such things as attendance and welfare services/costs, guidance and counseling, health services, etc.

3) General Support: Activities/costs that have as their purpose overall general administrative responsibilities for the entire county superintendents' office or school district. County superintendent and district administration personnel services/costs, maintenance services/costs (building and grounds maintenance, district-owned vehicle maintenance, etc.), operations services/costs (custodial salaries and supplies, utilities, etc.), and transportation services/costs (bus drivers, mechanics, field trips, etc.) are examples of such expenditures.

No single method will suffice for allocating the many different kinds of expenditures involved in school finance. For some activities, such as administrative salaries, average daily attendance or average daily membership may be the most satisfactory allocation method. For other activities, such as custodial and maintenance salaries, floor area may be the most satisfactory criterion. One of the most important considerations in selecting a method for allocating expenditures is that it have a direct relationship to the activity for which the expenditure is being allocated.

As described in detail on pages III-14 through III-18 of the 1978 Edition, California School Accounting Manual, there are many methods of allocating/prorating these direct support costs among the various vocational programs/services. The most common methods have for a basis either:

1) time
2) materials
3) average daily attendance
4) time-space
5) time consumption
6) quantity consumed
7) work order
8) mileage

NOTE: Regardless of which method of proration is chosen for each type of support service, it is essential that the same method be used in determining the program costs for each vocational program/service being analyzed as well as for each year the analysis is being performed. This will allow a sound basis for comparing the cost-effectiveness of a program from one year to another and between two or more different programs/services.

METHODS OF ALLOCATING DIRECT SUPPORT COSTS FROM SUPPORT SERVICE PROGRAMS TO INSTRUCTIONAL PROGRAMS

Support service program	Method						
	Time and materials	Rate per mile	Work order	A.d.a. or enrollment	Time-floor area	Hour consumption	Quantity consumed
Instructional Administration	X						
Instructional Media	X		X				
School Administration	X						
Pupil Services[a]	X			X			
District Administration	X		X				
Maintenance	X		X				
Operations	X				X	X	X
Transportation[a]	X	X		X[b]		X	

[a] These support programs will have no residual costs remaining to be distributed as indirect costs.
[b] Pupils actually transported.

1978 Edition, California School Accounting Manual.
California State Department of Education, p. III-15.

Indirect Support Costs: Each school district and office of the county superintendent of schools shall allocate indirect costs to all instructional programs and services. The following method should be used to allocate the indirect costs:

1) Total the remaining costs in all the support programs except special projects and other outgo.

2) Total the direct and direct support costs of the vocational instructional programs/services.

3) Divide the total determined in Step 1 by the total in Step 2, and carry to six decimal places.

Apply the rate obtained in Step 3 to the total of the direct and direct support costs of each vocational instructional program.

Interprogram charge and Credit Transfers: To ensure proper accounting procedures, examples of the various ways of making program transfers are given on pages III-18 and III-19 of the 1978 Edition, California School Accounting Manual. The diagram on the following page illustrates costs allocated from a support program (transportation) to an instructional program (Progam A) for services rendered (field trip).

ILLUSTRATION OF COST ALLOCATIONS FROM A SUPPORT PROGRAM TO AN INSTRUCTIONAL PROGRAM

BUDGET STATUS REPORT

Program: A — Program Code:

Location: — Site Code: XXX

A. Direct Program Costs	
1. Certificated Salaries	$15,083
2. Classified Salaries	3,307
3. Employee Benefits	1,540
4. Books, Supplies, etc.	1,175
5. Equipment Replacement	950
6. Other Operating Expenses	500
7. Capital Outlay	0
Total Direct Costs	22,555
B. Direct Support Program Costs	
8. Instructional Administration	400
9. Instructional Media	500
10. School Administration	500
11. Special Projects (See list)	
12. Attendance and Welfare	200
13. Guidance and Counseling	200
14. Health	300
15. District Administration	300
16. Maintenance	800
17. Operations	1,250
18. Transportation (Field trips)	1,500
19. Community Services	
20. Facilities Acquisition and Construction	
21. Food Services	
22. Other	
Total Direct Support Charges	5,950
Total Direct and Direct Support Costs	28,505
C. Indirect Support Program Costs	
23. Instructional Support	510
24. Pupil Services	
25. General Support (Home-to-school transportation = $61)	845
26. Auxiliary	
27. Other	
Total Indirect Support Charges	1,355
Total Program Costs	$29,860

Footnote (a)

Footnote (b)

BUDGET STATUS REPORT

Program: Transportation — Program Code:

Location: Districtwide — Site Code: XXX

A. Direct Program Costs	
1. Certificated Salaries	$ 0
2. Classified Salaries	46,514
3. Employee Benefits	7,850
4. Books, Supplies, etc.	9,800
5. Equipment Replacement	0
6. Other Operating Expenses	1,500
7. Capital Outlay	0
Total Direct Costs	65,664
B. Direct Support Program Costs	
8. Instructional Administration	
9. Instructional Media	
10. School Administration	
11. Special Projects (See list)	
12. Attendance and Welfare	
13. Guidance and Counseling	
14. Health	
15. District Administration	
16. Maintenance	
17. Operations	
18. Transportation (Field trips)	(10,500)
19. Community Services	
20. Facilities Acquisition and Construction	
21. Food Services	
22. Other	
Total Direct Support Charges	(10,500)
Total Direct and Direct Support Costs	55,164)
C. Indirect Support Program Costs	
23. Instructional Support	
24. Pupil Services	
25. General Support (Home-to-school transportation)	(55,164)
26. Auxiliary	
27. Other	
Total Indirect Support Charges	(55,164)
Total Program Costs	$ 0

[a] Transportation costs for direct services are also charged to other using instructional programs.

[b] Transportation costs may also be allocated to the other instructional programs if the district chooses to allocate indirect support costs.

NOTE: This illustration does not intermingle costs among the direct, direct support, and indirect support categories. The direct costs of instructional programs and support programs are not affected by direct support or indirect support charges. The support charges are kept within their own sections, and direct costs are subtotaled before adding or subtracting direct support charges. Consequently, direct costs will be cumulative for all programs and then combined with support services.

California School Accounting Manual, California State Department of Education, 1976, p. III-16.

E. TIME AND SEQUENCE OF PROGRAM ANALYSIS

The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" is designed to be performed by the vocational administrator, or by persons designated to do so, immediately upon completion of the program(s) and/or service(s), whether it be for a six-week, one year, or three year program. When the analysis process should take place is influenced primarily by the availability of all required data. The process is most beneficial if the data is collected and analyzed as soon as possible after the completion of the program/service.

For those programs based upon the school year cycle, February following the completed academic year is the most appropriate time to complete the analysis process. This is the earliest date that placement data for the completed school year is available. Annual analysis, therefore, could occur on or about successive Februarys. If placement data are available through other means at an earlier date, the analysis process would be most beneficial if performed at the earliest possible date following the completion of the school year.

NOTE: The process focuses on the performance of a newly completed vocational program and is based on data reflecting its operation and costs.

Both sides of the "PROGRAM OPERATIONS ANALYSIS WORKSHEET" are designed to accommodate the analyzing of an instructional program/service for a period of three consecutive offerings. This provides for ready access in checking a program's performance, identifying its problem areas and making improvements.

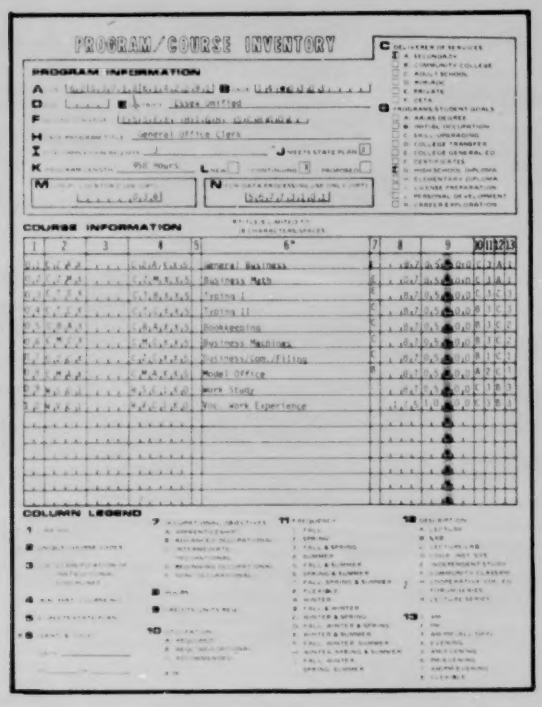
INSTRUCTIONS FOR COMPLETING THE VOCATIONAL EDUCATION OPERATIONS ANALYSIS WORKSHEET

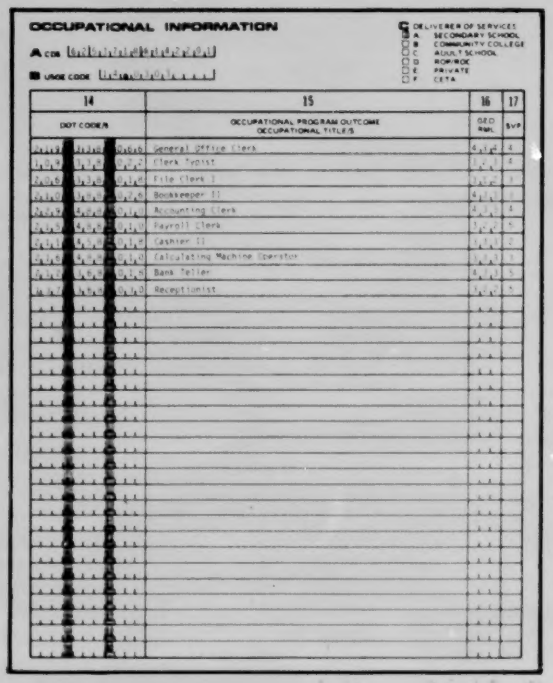
The step-by-step procedures presented in this section are meant to be used as a suggested sequence of activities only. However, if variations occur, CONSISTENCY in applying the definitions (i.e., what constitutes a student served, a completion, a placement and program costs) is the key to obtaining results that are valid for comparison purposes.

STEP ONE: Defining Programs

The first step toward implementing the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" is to define the vocational education programs being analyzed in terms of the courses they are comprised of and their occupational objectives.

Using information obtained from class lists and/or schedules and the suggested definition of a program as previously discussed on page 8, complete Sides I and II of the PCI form. See Attachment A for step-by-step instructions for completing the Program/Course Inventory (PCI).





STEP TWO: General Program/Service Information

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: **GENERAL OFFICE CLERK** USOE PROGRAM CODE: 14.0303

PROGRAM/SERVICE LENGTH: **958 HOURS** PROGRAM/SERVICE LOCATION: **ESSEX HIGH SCHOOL**

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL. 2 ÷ COL. 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL. B-5 ÷ COL. 4)
A	COST	$	$	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: M: F:	TOTAL: M: F:		$	$	
C	COMPLETIONS	TOTAL: M: F:	TOTAL: M: F:			$	
D	PLACEMENTS	TOTAL: M: F:	TOTAL: M: F:			$	
E	COMPOSITE EFFECTIVENESS						
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)					DATE:	
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST EFFECTIVENESS RATIO (F3÷B5)						

Program/Service Title: enter the title as identified on the PCI which best describes the program/service being analyzed. A separate worksheet must be used for each program/service.

USOE Program Code: if applicable, enter the six-digit USOE program code for the program as identified on the PCI.

Program/Service Length: enter the time (in terms of years, semesters, quarters, months, weeks, days, or hours) in which a student can expect to successfully complete the essential courses comprising the program, (Item K on the PCI). The importance of delineating the length of a program should not be minimized since providing skilled manpower at the time industry needs it is an important planning function of vocational education.

Program/Service Location: enter the physical site location of the program/service.

STEP THREE: Date

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 . 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL. 2 ÷ COL. 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL. B 5 ÷ COL. 4)
A	COST	$	$	UNUSUAL EXPENDITURES			
B	STUDENTS SERVED	TOTAL M F	TOTAL M F		$	$	
C	COMPLETIONS	TOTAL M F	TOTAL M F			$	
D	PLACEMENTS	TOTAL M F	TOTAL M F			$	
E	COMPOSITE EFFECTIVENESS						
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%			
H	COST EFFECTIVENESS RATIO (F3÷B5)						

DATE: SCHOOL YEAR 1978 - 79

NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.

Enter the time period which the analysis process reflects. The process focuses on the performance of vocational programs based on data reflecting operations and costs for a program just recently completed. Therefore, both the beginning and ending dates should be recorded.

STEP FOUR: Item A - Planned and Actual Program Costs

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 . 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL. 2 ÷ COL. 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL. B 5 ÷ COL. 4)
A	COST	$ 47,717	$ 45,412	UNUSUAL EXPENDITURES			
B	STUDENTS SERVED	TOTAL M F	TOTAL M F		$	$	
C	COMPLETIONS	TOTAL M F	TOTAL M F			$	
D	PLACEMENTS	TOTAL M F	TOTAL M F			$	
E	COMPOSITE EFFECTIVENESS						
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%			
H	COST EFFECTIVENESS RATIO (F3÷B5)						

DATE: School Year 1978-79

NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.

A-1: Planned Program Costs: enter both the Federal and non-Federal dollar amount that was budgeted for program operation during the time period the program is being analyzed. Proposed Federal expenditures are obtainable from the "Schedule of Proposed Expenditures" (a portion of the VEA Application for Funds) or from the base data utilized to compile these tables. Non-Federal proposed expenditures may also be available from this same base data which is needed to determine how the Federal dollars will be spent in relationship to total program costs.

A-2: Actual Program Costs: enter both the Federal and non-Federal total dollar amount that was expended for the program/service during the period of operation. Actual program costs are available from the VEA Claim Forms, or from the base data used to compile these reports.

STEP FIVE: Item B - Planned and Actual Students Served

The National Center for Educational Statistics (NCES) has defined a program enrollment/student served as the official entrance of a student into a vocational education program at the level at which a vocational objective can be stated or implied.

Various enrollment and attendance accounting procedures are presently being utilized in the different types of educational institutions to keep track of and assess the flow of students. These existing procedures provide a mulititude of options available for identifying and recording planned and actual numbers of students being served in specific programs/services. These options include, but are not limited to the following:

1) annual enrollments;
2) semester enrollments;
3) number of slots/seats available (duplicate count);
4) student contact hours;
5) weekly contact hours; or
6) unduplicated count.

NOTE: Regardless of which option is choosen the same method must be used to determine both the planned and actual numbers of students served.

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 . 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 hou's — PROGRAM/SERVICE LOCATION: Esses High School

		1	2	3	4	5	6
		PLAN	ACTUAL	EFFECTIVENESS (COL. 2 ÷ COL.1)	PLANNED UNIT COST (A1 ÷ B1)	ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	EFFICIENCY INDEX (COL. B 5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL 66 M 6 F 60	TOTAL 60 M 5 F 55		$	$	
C	COMPLETIONS	TOTAL M F	TOTAL M F			$	
D	PLACEMENTS	TOTAL M F	TOTAL M F			$	
E	COMPOSITE EFFECTIVENESS					DATE: School Year 1978-79	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN		
H	COST EFFECTIVENESS RATIO (F3÷B5)						

B-1: Planned Students Served: enter, by sex and total sum, the number of students who are expected to be served by the specified vocational program/service. This information is available from existing data sources or from the base data utilized to compile these reports. Depending on which option was selected, the data sources include, but are not limited to: (1) anticipated attendance based on past history records, (2) anticipated students to be served based on projected budgets, (3) the State of California, Vocational Education form entitled "Projected Enrollments in Vocational Education Programs/ Services, and (4) the "Anticipated Program Enrollments and Completions - Primary Student Involvement", a computer generated report produced through the Public Education Supply Data System (PESDS).*

B-2: Actual Students Served: enter, by sex, the number of students who were served in the vocational education program/service during the analysis period. The number of students served is available from various existing data sources. Some of these data sources include, but are not limited to: (1) actual attendance records, (2) the State Department of Education Enrollment and Attendance Reports known as the "J" series forms, (3) the VEA 48, "Enrollment in Vocational Education Programs/Services", or the PESDS computer generated report "Current Program Enrollments and Completions - Primary Student Involvement." The sum of male and female enrollments should also be entered in the space provided.

STEP SIX: Item C - Planned and Actual Program Completions

For analysis purposes, program completions are comprised of all persons possessing the skills necessary to be employable. This includes both completers and leavers who have completed more than 50% of the program competencies. As defined by the National Center for Educational Statistics (NCES), program completers are those students who have finished a planned sequence of courses, services,

* The Public Education Supply Data System (PESDS), a sub-system within the California Occupational Information System (COIS), is a computerized system that generates information to complete the VE projected enrollments, the VEA 48s, and portions of the 45s. It also provides the basis to produce supply/demand information, an essential data requirement for program planning.

or activities designed to meet a vocational objective and which purports to teach entry-level job skills. The PESDS defines a program completion as follows: A student is considered a program completer when he or she has completed the minimum number of required and required optional courses as identified in Item I of the Program/Course Inventory (PCI). Item I usually reflects all required courses identified with an "A" marking and a specific number of the required optional courses ("B") as assigned by the person(s) completing the PCI.

Also to be included as a completer are leavers who complete more than 50% of the program's competencies. NCES defines a leaver as anyone who has been enrolled and attended a program of vocational education and leaves the program or institution without completing the program, including persons who leave the program voluntarily before its formal completion because they have acquired sufficient entry-level occupational preparation to work in the field.

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 1 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL. 2 ÷ COL. 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL. 5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: 66 M: 6 F: 60	TOTAL: 60 M: 5 F: 55		$	$	
C	COMPLETIONS	TOTAL: 64 M: 5 F: 59	TOTAL: 49 M: 3 F: 46			$	
D	PLACEMENTS	TOTAL: M: F:	TOTAL: M: F:			$	
E	COMPOSITE EFFECTIVENESS					DATE: School Year 1978-79	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN		
H	COST EFFECTIVENESS RATIO (F3÷B5)						

C-1: Planned Completions: enter, by sex and total sum, the number of students who are expected to complete the vocational education program and/or leave the program with skills. This information may be contained in the VEA Application for Funds and/or in the PESDS report entitled "Anticipated Enrollments and Completions - Primary Student Involvement." The sum of male and female completers and leavers with skills should be entered in the space provided.

C-2: Actual Completions: enter, by sex and their sum, the number of students who have been identified as program completers and leavers with skills. The number of actual program completers and leavers

with skills, male and female, is available from the VEA 48 "Program Enrollment and Termination Report" or the "Current Program Enrollments and Completions - Primary Student Involvement" report produced through the PESDS.

STEP SEVEN: Item D - Planned and Actual Program Placements

Placements are those individuals who are identifiable by name as program completers, (including leavers with skills), and, by subsequent follow-up procedure, are also identifiable as workers in those occupations for which the program was designed, or are continuing advanced training for the same occupational field of study.

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 — PROGRAM/SERVICE LOCATION: Essex High School

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL 2 ÷ COL 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL 5 ÷ COL 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: 66 M: 6 F: 60	TOTAL: 60 M: 5 F: 55		$	$	
C	COMPLETIONS	TOTAL: 64 M: 5 F: 59	TOTAL: 49 M: 3 F: 46			$	
D	PLACEMENTS	TOTAL: 34 M: 3 F: 31	TOTAL: 36 M: 1 F: 35			$	
E	COMPOSITE EFFECTIVENESS						
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)					DATE: School Year 1978-79	
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN		
H	COST EFFECTIVENESS RATIO (F3÷B5)						
	COST		$	UNUSUAL			

D-1: Planned Placements: enter the number of male and female students and the total sum, who are expected to be placed in, or who will obtain employment, or continue their education in the same occupational field after completing the vocational instructional program. This information may be included in the "Local Educational Agency Vocational Education Profile", a portion of the VEA Application for Funds.

D-2: Actual Placements: enter the number of students, male, female, and total, who have been identified as vocational education program placements. This information is available from the VEA 45 "follow-up" report or from the base data utilized to compile these reports.

STEP EIGHT: Side Two (Optional) - Planned and Actual Students Served, Completions, and Placements

Side Two may be utilized to include additional objectives/desired outcomes in the analysis process not designated on Side One. Based on the operating thrusts of the vocational administrators, program relevancy, and data availability, appropriate objectives/desired outcomes may be selected and recorded in the spaces provided. The handicapped, disadvantaged, and limited-English speaking categories are listed for convenience purposes only and are not intended to be required inclusions. Blank spaces are available for entering other objectives/desired outcomes not already listed. (Refer to page 11 for a list of suggested objectives/desired outcomes for Side Two.)

Enter the planned and actual number of students served, completions, and placements for each of the objectives/desired outcomes choosen. Remember, Side Two recounts the same students enumerated on Side One, i.e. a duplicate count.

STUDENTS SERVED DATE 1978-79 COMPLETIONS PLACEMENTS

	PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN
HANDICAPPED	10	6		HANDICAPPED	8	4		HANDICAPPED	4	4	
DISADVANTAGED	7	3		DISADVANTAGED	4	2		DISADVANTAGED	2	1	
LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING			
Dis. Homemakers	5	3		Dis. Homemakers	4	3		Dis. Homemakers	2	3	

COMPOSITE EFFECTIVENESS: _____ AVERAGE EFFECTIVENESS: _____

OPERATIONS ANALYSIS FORMULAS

$$\text{Effectiveness} = \frac{\text{Actual}}{\text{Planned}}$$

$$\text{Unit Cost} = \frac{\text{Total Program Costs}}{\text{Units of Output}}$$

$$\text{Efficiency Index} = \frac{\text{Actual Unit Cost per Student Served}}{\text{Planned Unit Cost per Student Served}}$$

$$\text{Performance Ratio} = \frac{\text{Average Program Effectiveness}}{\text{Efficiency Index}} \times 100$$

$$\text{Cost-Effectiveness Ratio} = \frac{\text{Average Program Effectiveness}}{\text{Actual Unit Cost per Student Served}}$$

STEP NINE: Column 3 - Effectiveness

Effectiveness is a measure of the distance travelled toward meeting an objective. Program effectiveness is measured by the relationship between planned objectives and the actual degree of attainment.

Program effectiveness (Column 3, Rows B, C, and D) is computed by dividing actual performance (Column 2) by planned performance (Column 1), rounded off to two (2) decimal places.

$$\text{Effectiveness} = \frac{\text{Actual}}{\text{Planned}}$$

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 6 . 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1	2	3	4	5	6
		PLAN	ACTUAL	EFFECTIVENESS (COL. 2 ÷ COL. 1)	PLANNED UNIT COST (A1 ÷ B1)	ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	EFFICIENCY INDEX (COL. B-5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL 66 M: 6 F: 60	TOTAL 60 M: 5 F: 55	.91	$	$	
C	COMPLETIONS	TOTAL 64 M: 5 F: 59	TOTAL 49 M: 3 F: 46	.77		$	
D	PLACEMENTS	TOTAL 34 M: 3 F: 31	TOTAL 36 M: 1 F: 35	1.06		$	
E	COMPOSITE EFFECTIVENESS						
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)					DATE: School Year 1978-79	
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST EFFECTIVENESS RATIO (F3÷B5)						
[illegible]	[illegible]		$	UNUSUAL EXPENDITURES:			

For example, in the General Office Clerk program, 66 students were expected to be served, however, for various reasons, only 60 were actually served during the school year, 6 less than planned. Therefore, with one (1.00) being the most desirable score, this program was .91 effective in meeting the previously specified objectives pertaining to students served.

$$66 \div 60 = .9090 = .91$$

NOTE: Any score that substantially deviates from 1.00, either above or below, should be carefully reviewed to identify any problem areas that may exist. See pages 39 through 57 for detailed interpretation procedures, possible reasons for ineffective programs, and strategies for improvement.

The same process is to be applied in computing the effectiveness scores for completions (Row C), placements (Row D), and all objectives/desired outcomes included on Side Two of the worksheet.

STEP TEN: Items E and F - Composite and Average Effectiveness

A composite effectiveness score is made by totaling the three effectiveness scores appearing in B-3, C-3, and D-3. Round the resulting sum to two (2) decimal places and place it in the space provided (E-3). To find the average program effectiveness (F-3), divide the composite effectiveness score (E-3) by three.

A score equal to one (1.00) means the program has actually met every objective exactly as planned.

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL. 2 ÷ COL. 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL. 3-5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: 66 M: 6 F: 60	TOTAL: 60 M: 5 F: 55	.91	$	$	
C	COMPLETIONS	TOTAL: 64 M: 5 F: 59	TOTAL: 49 M: 1 F: 49	.77		$	
D	PLACEMENTS	TOTAL: 34 M: 3 F: 31	TOTAL: 36 M: 1 F: 35	1.06		$	
E	COMPOSITE EFFECTIVENESS			2.74		DATE: School Year 1978-79	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)			.91			
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3÷B5)						

For example, in the General Office Clerk program a composite and average effectiveness score is derived as follows:

.91 Students Served
.77 Completions
1.06 Placements
2.74 Composite Effectiveness (E-3)

2.74 ÷ 3 = .91 Average Program Effectiveness (F-3)

This means that compared to one (1.00) this program was .09 away from meeting all previously specified objectives.

NOTE: Any score that substantially deviates from one (1.00), either above or below, should be carefully reviewed to identify any problem areas that may exist. See pages 39 through 57 for detailed interpretation procedures, possible reasons for ineffective programs, and strategies for improvement.

Composite and average effectiveness scores can be develcped for Side Two by using the same procedures described above.

STEP ELEVEN: Columns 4 and 5 - Planned and Actual Unit Cost

The production of a desired result with a minimum of effort, expense, or waste is known as economic efficiency. It is, however, important to recognize that economic efficiency means not conducting education on a "least-cost" basis, but the achievement of a given objective with the least cost or the maximization of a given objective with a given cost.

For purposes of this analysis process, efficiency is measured by cost and output relationships which results in unit costs. These unit costs indicate the resources consumed for a unit of output. Compute unit costs as efficiency measures by dividing total program costs by the units of output.

$$\text{Unit Cost(s)} = \frac{\text{Total Program Cost}}{\text{Unit(s) of Output}}$$

--Unit cost(s): cost per student served, cost per completion, cost per placement.

--Unit(s) of output: number of students served, number of completions, number of placements.

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1	2	3	4	5	6
		PLAN	ACTUAL	EFFECTIVENESS (COL. 2 ÷ COL. 1)	PLANNED UNIT COST (A1 ÷ B1)	ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	EFFICIENCY INDEX (COL. B-5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: 66 M: 6 F: 60	TOTAL: 60 M: 5 F: 55	.91	$ 772.98	$ 756.87	
C	COMPLETIONS	TOTAL: 64 M: 5 F: 59	TOTAL: 49 M: 3 F: 46	.77		$ 926.78	
D	PLACEMENTS	TOTAL: 34 M: 3 F: 31	TOTAL: 36 M: 1 F: 35	1.06		$ 1,261.44	
E	COMPOSITE EFFECTIVENESS			2.74		DATE: School Year 1978-79	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)			.91			
G	PERFORMANCE RATIO ((F3 ÷ B6) x 100)			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST EFFECTIVENESS RATIO (F3÷B5)						

B-4: Planned Unit Cost (per student served): compute the planned cost per student served by dividing the total budgeted program costs by the planned number of students to be served.

$$\text{Planned Unit Cost (per student served) (B-4)} = \frac{\text{Planned Program Costs (A-1)}}{\text{Planned Number of Students to be Served (B-1)}}$$

B-5: Actual Unit Cost (per student served): compute the actual cost per student served by dividing actual program expenditures by the actual number of students served.

$$\text{Actual Unit Cost (B-5)} = \frac{\text{Actual Program Costs (A-2)}}{\text{Actual Number of Students Served (B-2)}}$$

For example, in the General Office Clerk program, $47,717 was budgeted for program operation to serve 66 students. Therefore, it was planned to spend $722.98 per student ($47,717 ÷ 66 = $722.98) during the program year. Actual expenditures per student were $756.87 ($45,412 ÷ 60 = $756.87).

C-5: Actual Unit Cost (per completion): compute the actual cost per completion by dividing actual program expenditures by the actual number of completions.

$$\text{Actual Unit Cost (D-5)} = \frac{\text{Actual Program Costs (A-2)}}{\text{Actual Number of Completions (C-2)}}$$

D-5: Actual Unit Cost (per placement): compute the actual cost per placement by dividing actual program expenditures by the actual number of placements.

$$\text{Actual Cost per Placement (D-5)} = \frac{\text{Actual Program Costs (A-2)}}{\text{Actual Number of Placements (D-2)}}$$

STEP TWELVE: Column 6 - Efficiency Index

The efficiency index is a measurement of the degree of goal attainment in regards to the objective dealing with unit cost per student served. This number is computed by dividing the actual unit cost per student served by the budgeted unit cost per student served.

$$\text{Efficiency Index (B-6)} = \frac{\text{Actual Unit Cost per Student Served (B-5)}}{\text{Planned Unit Cost per Student Served (B-4)}}$$

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 14.0303

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL. 2 ÷ COL. 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL. B-5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: 66 M: 6 F: 60	TOTAL: 60 M: 5 F: 55	.91	$ 772.98	$ 756.87	1.05
C	COMPLETIONS	TOTAL: 64 M: 5 F: 59	TOTAL: 49 M: 3 F: 46	.77		$ 926.78	
D	PLACEMENTS	TOTAL: 34 M: 3 F: 31	TOTAL: 36 M: 1 F: 35	1.06		$ 1,261.44	
E	COMPOSITE EFFECTIVENESS			2.74		DATE: School Year 1978-79	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)			.91			
G	PERFORMANCE RATIO ((F3 ÷ B6) x 100)			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3÷B5)						

In the General Office Clerk example it was planned to spend $722.98 per student and $756.87 was actually expended, making the efficiency index 1.046. Rounded off to two (2) decimal places, this equals 1.05 which can be interpreted as the program spent .05 or $33.89 more than planned per student served.

$$\$756.87 \div \$722.98 = 1.046 = 1.05$$

A score equal to one (1.00) represents the most desirable score, meaning the program/service has spent exactly what was planned.

NOTE: Any score that substantially deviates from one (1.00), either above or below, should be carefully reviewed to identify any problem areas that may exist.

STEP THIRTEEN: Item G - Performance Ratio

One of the ultimate products of the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" is the program performance ratio. This single indicator is no more than a precise index representing both program effectiveness and cost efficiency together. Therefore, this ratio should be interpreted along with both effectiveness and efficiency implications.

The performance ratio is generated from the division of the average program effectiveness (F-3) by the efficiency index (B-6), times one hundred (100) to obtain a percentage figure.

$$\text{Performance Ratio (G)} = \frac{\text{Average Program Effectiveness (F-3)}}{\text{Efficiency Index (B-6)}} \times 100$$

With one hundred percent (100%) being the most desirable score, it indicates the overall degree of program management performance. In other words, it provides the administrator/coordinator with an indicator which evaluates his/her ability to meet the objectives that were set at the beginning of the school year for both program performance and cost.

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 0 3 0 3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL. 2 ÷ COL. 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL. B-5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: 66 M: 6 F: 60	TOTAL: 60 M: 5 F: 55	.91	$ 772.98	$ 756.87	1.05
C	COMPLETIONS	TOTAL: 64 M: 5 F: 59	TOTAL: 49 M: 3 F: 46	.77		$ 926.78	
D	PLACEMENTS	TOTAL: 34 M: 3 F: 31	TOTAL: 36 M: 1 F: 35	1.06		$ 1,261.44	
E	COMPOSITE EFFECTIVENESS			2.74			
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)			.91		DATE: School Year 1978-79	
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			87 %	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3÷B5)						

In the General Office Clerk program the performance ratio is computed as follows:

$$.91 \div 1.05 = .866 = .87 \times 100 = 87\%$$

This score indicates that the administrator/coordinator has planned, operated, and managed the General Office Clerk program fairly well. Further comparison over a period of years would give the administrator/coordinator an indicator of any necessary adjustments for continued satisfactory performance.

STEP FOURTEEN: Item H - Cost-Effectiveness Ratio

The final product produced by this analysis process is a cost-effectiveness ratio. This ratio provides a criterion for judging program effectiveness in relation to associated costs. It indicates the degree of goal attainment per unit cost.

The cost-effectiveness ratio results from the computation of program effectiveness measures over unit costs as efficiency measures. As a result, this definition of a cost-effectivenesss ratio is somewhat different from the more commonly used concept, which is

determined by dividing outputs by the costs as inputs. The latter concept lacks effectiveness measures which would make it more of a cost-output ratio rather than a cost-effectiveness ratio.

To be cost-effective means to maximize the achievement of all planned objectives while at the same time minimizing costs. In other words, getting more output per dollar.

$$\text{Cost-Effectivenesss (H)} = \frac{\text{Average Program Effectiveness (F-3)}}{\text{Actual Unit Cost per Student Served (B-5)}}$$

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1,4,0,3,0,3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1	2	3	4	5	6
		PLAN	ACTUAL	EFFECTIVENESS (COL. 2 + COL.1)	PLANNED UNIT COST (A1 ÷ B1)	ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	EFFICIENCY INDEX (COL. B-5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: 66 M: 6 F: 60	TOTAL: 60 M: 5 F: 55	.91	$ 772.98	$ 756.87	1.05
C	COMPLETIONS	TOTAL: 64 M: 5 F: 59	TOTAL: 49 M: 3 F: 46	.77		$ 926.78	
D	PLACEMENTS	TOTAL: 34 M: 3 F: 31	TOTAL: 36 M: 1 F: 35	1.06		$ 1,261.44	
E	COMPOSITE EFFECTIVENESS			2.74		DATE: School Year 1978-79	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)			.91			
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			87 %	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3÷B5)			.0012			

In our General Office Clerk program example the cost-effectiveness indicator is derived as follows:

$$.91 \div \$756.87 = .00120 = .0012$$

This ratio is meaningful only when used to compare the cost-effectiveness of a single program at different points of time or for analyzing two or more programs where the cost-effectiveness ratio were derived in the same manner. The higher the indicator the greater the cost-effectiveness, meaning more output (output being the number of students served) is being produced per dollar. Convertly, the smaller the number the less output per dollar.

NOTE: The cost-effectiveness ratio is meaningless by itself and is useful only for comparison with other similarly derived ratios.

INTERPRETATION

The "VOCATIONAL EDUCATION OPERATION ANALYSIS PROCESS" generates measures which provide means for analyzing vocational programs/services in terms of three primary questions.

For a single program or service:

1) Is the program effective? To what extent have the program objectives been achieved?

2) How efficient is the program? Have the desired results been achieved with a minimum of costs?

3) Is the program cost-effective? Does the program perform in an effective and efficient manner?

The following interpretive analysis was made for the General Office Clerk program as a result of investigating these three questions.

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: General Office Clerk — USOE PROGRAM CODE: 1 4 1 0 1 3 0 1 3

PROGRAM/SERVICE LENGTH: 958 hours — PROGRAM/SERVICE LOCATION: Essex High School

		1 PLAN	2 ACTUAL	3 EFFECTIVENESS (COL. 2 ÷ COL. 1)	4 PLANNED UNIT COST (A1 ÷ B1)	5 ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	6 EFFICIENCY INDEX (COL. 3-5 ÷ COL. 4)
A	COST	$ 47,717.00	$ 45,412.00	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: 66 M: 6 F: 60	TOTAL 60 M: 5 F: 55	.91	$ 772.98	$ 756.87	1.05
C	COMPLETIONS	TOTAL: 64 M: 5 F: 59	TOTAL: 49 M: 3 F: 46	.77		$ 926.78	
D	PLACEMENTS	TOTAL: 34 M: 3 F: 31	TOTAL 36 M: 1 F: 35	1.06		$ 1,261.44	
E	COMPOSITE EFFECTIVENESS			2.74			
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)			.91			
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			87 %			
H	COST EFFECTIVENESS RATIO (F3÷B5)			.0012			

DATE: School Year 1978-79

NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN

Is the General Office Clerk program effective?

The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" measures effectiveness for four primary objectives.

Students Served: The program planned to serve 66 students but only succeeded in serving 60 or .91 of plan.

Completions: Out of the 66 students who were to be served, it was anticipated that 64 would complete the program during the school year. However, only 49 left the program with enough skills to be employable (completions and leavers with skills) or .77 of plan.

Placements: While only 34 placements were called for in the plan, the program exceeded this goal by placing 36 students, 2 more than anticipated making the effectiveness score 1.06 of plan.

These three measures of effectiveness are now combined into an Average Program Effectiveness rate of .91. This indicator then becomes the primary means for answering the question regarding program effectiveness. However, it is evident that the poor performance in completions was balanced by the higher number of students placed, resulting in a respectable overall effectiveness rate of .91. This satisfactory average rate, however, should not be allowed to whitewash the less than satisfactory performance in the area of completions. The analysis process has identified a problem area requiring some attention and consideration. (Refer to pages 49 - 51 for possible reasons for a lower than desired completion rate.)

Costs: The fourth effectiveness measure resulting from this process is the efficiency index. This index reveals how closely the actual unit costs came to plan. In the General Office Clerk program the cost per student served is 1.05 of plan, or .05 over the specified objective. This is due to incorrect estimation of both expenses and the number of students to be served, which resulted in a higher cost per student served. This may or may not be a problem area depending on the reasons for not expending as planned. Examining the planned budget against actual expenditures provides ready access to determination of which object of expenditures were underspent and how the budget may be more effectively developed in the future. Remember, being efficient does not mean conducting education on a "least-cost" basis, but the achievement of a given objective with the least cost or the maximization of a given objective with a given cost.

How efficient is the General Office Clerk program? Have the desired results been achieved with minimum of costs?

The primary measures to consider in answering this question are unit costs. As indicated above, unit costs per student served are higher than anticipated due to underenrollments and underspending. Even though unit costs for completions and placements do not directly relate in determining the cost-effectiveness of the program, they are of importance in gaining a complete picture of program performance.

To fully establish the efficiency of a program/service, the administrator may wish to compare the unit costs of many similar programs to determine which are unusually high and which are producing results at the lowest costs, in order to have a basis for establishing standards.

Is the General Office Clerk program both effective and efficient?

The "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" provides two measures to assist in gaining the answer to this question. The first is the performance ratio (Item G), the second, the cost-effectiveness ratio (Item H). The performance ratio combines the average program effectiveness (Item F) with the efficiency index (Item B-6). Both are effectiveness measures. This combination tends to increase the average program effectiveness score when costs are kept below plan. It also decreases the average program effectiveness score when costs overrun planned expenditures. In the General Office Clerk program, the average program effectiveness is .91, a satisfactory overall effectiveness score which pertains to students served, completions, and placements. However, when combined with the effectiveness score associated with costs (the efficiency index), the average program effectiveness score is decreased to 87%. This indicates that the program is less effective because unit costs are below plan.

The second measure which needs to be examined in answering this question is the cost-effectiveness ratio. This ratio provides us with a measure which combines the average program effectiveness with the actual unit cost per student served. (Remember, this number is useful only when compared to similarly derived cost-effectiveness ratios.) If the cost-effectiveness ratio of the General Office Clerk program was compared with two other programs having cost-effectiveness ratios of .0008 and .0022 respectively, the program, with its cost-effectiveness index of .0012, would be considered more cost-effective than the program having a .0008 and less cost-effective than the program having a .0022 ratio.

NOTE: Cost-effectiveness ratios can be improved upon by obtaining more output per dollar by either decreasing dollar costs subject to some degree of effectiveness or to increase the measure of effectiveness with a budget constraint.

It should be noted that much of the usefulness of the "VOCATIONAL EDUCATION OPERATIONS ANALYSIS PROCESS" depends on the quality of the plan to which the progrm's performance is being compared. A faulty plan can make a good program look poor or conversely, a poorly executed program can make an excellent projection or plan look fallacious. The administrator utilizing the process should constantly keep this possibility in mind and be on the alert for signs of imperfection in the plan as well as poor program performance.

For example, the General Office Clerk program analysis process identifies a problem in the area of completions by having an effectiveness score of .77. At first it may appear that the problem exists in program performance which should spark an investigation into program operations, i.e. course content, time of day program is offered, teaching methods, equipment and facilities acquistion, etc. However, if this in depth study into program operations reveals that the problems do not exist in these areas, then a look at the planning process may result in the discovery of inadequacies in the plan. For instance, when the target objectives were set for the General Office Clerk program it was anticipated that 97% (64 out of 66) of those entering would either complete the program in its entirety or leave with enough skills to be employable. Actual performance reveals that only 82% (49 out of 60) of those entering the program left with the necessary skills to become employable. After carefully reviewing a number of similar programs in terms of occupational objectives, the teaching process, student and community characteristics, etc., the administrator may find that a 82% completion rate may be more realistic for this type of program than 97%. Therefore, the program may be performing well, but the plan may not be realistic. Alternatives for the next program cycle may be to; 1) adjust the plan to be more realistic and/or, 2) allocate more dollars to increase program retention. Both will increase program effectiveness. It is advised, however, that before changing the program plan, which would increase the performance ratings, the administrator should thoroughly investigate the cause of the low scores so as not to make a program seem to be improved although it is <u>not</u>.

<u>When comparing two or more programs</u>, conclusions should be based on the following questions:

1) Which program is most effective among the studied programs?
2) Which program is most efficient?
3) Which program is most cost-effective?

Using hypothetical data to assist in investigating these questions, suppose three programs (A, B, and C) were selected for analysis from among the vocational progrms in a secondary insititution. At the beginning of the school year planned program objectives and costs were specified. At the end of the program operation actual objectives and costs were available for analysis. The hypothetical data are as follows:

	Instructional Programs		
Planned	A	B	C
Expected number of students to be served	90	80	75
Expected number of completions	80	70	60
Expected number of placements	50	40	45
Actual			
Actual number of students served	85	75	60
Actual number of completions	70	60	50
Actual number of placements	45	35	40
Costs			
Planned Program Costs	$50,000	$35,000	$40,000
Actual Program Costs	55,000	35,000	38,000

Based on this data the following computations were performed to obtain the measurable results:

1) Program effectiveness scores were computed by dividing actual outputs with planned target goals. (Step Nine and Ten)

2) Cost efficiency was measured by determing unit costs. (Step Eleven)

3) A cost efficiency index was made by dividing the actual unit cost by the planned unit cost. (Step Twelve)

4) A performance ratio was derived from the division of the average program effectiveness by the cost efficiency index. (Step Thirteen)

5) Finally, a cost-effectiveness ratio was computed by dividing the average program effectiveness by the acutal unit cost. (Step Fourteen)

The results are as follows:

	Instructional Programs		
Program Effectiveness	A	B	C
Students Served	.94	.94	.80
Completions	.88	.86	.83
Placements	.90	.80	.89
Composite	2.72	2.68	2.52
Average Program Effectiveness	.91	.89	.84
Cost Efficiency : Unit Costs			
Planned Unit Costs (per student served)	$556	$438	$533
Actual Unit Cost (per student served)	$647	$467	$633
Cost Efficiency Index	1.16	1.07	1.19
Performance Ratio	78%	83%	71%
Cost-Effectiveness Ratio	.0014	.0019	.0013

The previously discussed questions can now be answered. Referring to the average program effectiveness measure, Program A is the most effective among the three programs; whereas, Program B is the most efficient on the basis of the cost efficiency index. Furthermore, according to the performance and cost-effectiveness ratio, Program B is overall the most effective and efficient among the three programs.

NOTE: A program can be effective and not efficient or efficient and not effective. It can also be well planned and not managed effectively or managed effectively and not well planned.

When comparing two or more programs, caution should be given to the following: 1) Were the objectives pertaining to students served, completions, and placements derived in the same manner for each program/service being compared? and, 2) Was the same method used to determine the program cost for each of the vocational programs/services being compared?

Utilization of the Results. The results of this analysis can be utilized for program evaluation, development, and planning. For program evaluation it is possible to identify if and where problem areas exist and what may be adjusted to improve program's performance. In addition, it is possible to determine what cost increases will mean to the degree of program effectiveness at different time periods.

The measures arrived at through the analysis process can provide decision-makers with information needed to assist in developing new programs. If a program is identified as being very ineffective and inefficient, a judgment can be made as to how the program should be modified, or deleted or replaced with a new alternative.

Finally, the analytical results provide a basis for future planning toward the improvement of vocational programs. A short-range (one or two year) plan can be made for minor changes and improvements in vocational education. Administrators can also develop a long-range (five or ten year) plan to implement developmental strategies for the improvement of the overall vocational education picture as well as developing new alternate vocational programs from a long-range perspective.

The following is an adapted version of a paper that was prepared for the National Priority Training Program on Improving Cost-Effectiveness of Vocational Programs held in March 1978 in Indianapolis, Indiana.

INSIDE THE BLACK BOX: PROCESS EVALUATION AS A PART OF COST/EFFECTIVENESS/BENEFIT ANALYSIS

Lois-ellin Datta
National Institute of Education

Simply identifying a program as ineffective or inefficient may not be adequate information to permit a judgement to be made concerning how the program should be modified or deleted, or whether a new alternative program should be developed. While the hunches of administrators and teachers about what to do to improve program effectiveness is a good starting place, unless we get inside the black boxes of the programs themselves, we may still be quite far from knowing how to use the "VOCATIONAL EDUCATION PROGRAM OPERATIONS ANALYSIS PROCESS" for making improvements. Incorporating process evaluation into cost/effectiveness analysis could provide the otherwise missing link to sound program planning, and to wise selection among strategies for improving the effectiveness of vocational education programs.

The next sections address three topics. The first section illustrates the need for process evaluation as part of cost/effectiveness studies. The second section identifies some alternative reasons for ineffectiveness in the frequently used outcomes for cost/effectiveness analysis (enrollment, completion, employment). The third section suggests some general strategies for program improvement.

Why We Need to Get Inside the Black Box: Programs and Cost-Effectiveness

The following example is hypothetical. Suppose that indices for enrollment, completion and employment are available for three local programs: A, B, and C. While program C does creditably by internal cost criteria, it is lowest on all effectiveness score measures.

We assume here that programs A, B, and C are in a fair horse race: that is, they are all trying to reach the same objectives in basically the same area (for example, tool-and-die-maker training). Also let us assume that as program planners, we want to increase the effectiveness of Program C. Should the program be modified? Should it be deleted? Should an alternative program be started?

My first response, as perhaps yours, might be: who knows? More information seems needed about the program. OK: suppose we are told program C runs for 12 weeks and uses the state-specified curricula for tool-and-die-maker training. Now what do we do to improve effectiveness? Still can't say? What else do we want to know about program C---and possibly about programs A and B---before recommending changes in C or agreeing to the changes recommended by the teacher (for example, let's suppose the teacher wants to hire a teaching assistant to help the slow learners)? We might want to know something about the students: their sex, age, whether they are slow learners or fast learners in other courses, what kind of counseling they received prior to enrollment, if they were paying for the program themselves or were subsidized to stay in school, whether the equipment was up-to-date, the adequacy of the facilities, the present instructor's past record with similar students, how placement was carried out, job opportunities in the community, something of the community's placement record for similar programs, why the teacher has recommended hiring a teaching assistant over other alternatives that might have been considered, and something about the recruitment, selection, teaching processes and placement approaches in programs A and B to see if any of the reasons for their effectiveness would be useful guides to knowing what to do to improve the effectiveness of Program C.

The actions to be taken regarding Program C are <u>not</u> evident in the cost/effectiveness data alone. The indices are useful flags for further inquiry, yet a <u>post hoc</u> search for explanations before we judge what action should be taken generates more questions. Yet without such information, the planner has few ways of sorting out recommendations based on plausible explanations for ineffectiveness from recommendations which may reflect little more than self-interest, shortsightedness, or a chance to advocate what the suggestor would want to do under any circumstances.

In the above examples, considerable time would be required between examining the effectiveness data and judging what to do to improve effectiveness because information relevant to alternative courses of action was not collected from the beginning as part of the program. We are now having to backtrack; but some planning ahead for process studies might have prevented considerable present uncertainty about how to improve program effectiveness.

Understanding the Data: Some Possible Reasons for Ineffective Programs

Three measures of effectiveness--enrollment, completion, and placement have been selected to illustrate possible reasons for program ineffectiveness. These particular outcomes have been selected primarily because they are among the foci of vocational education.

One explanation would hold, of course, for almost any type of outcome. Particularly where effectiveness is defined as the ratio of achievement to initially established goals, high effectiveness could be an artifact of levels of expectation set too low to be meaningful while ineffectiveness could be due to setting initial levels of expectation to high. It is important to keep in mind that the first step to understanding the reasons for either high or low effectiveness scores may be to examine the way in which the expectations were derived. These should be meaningful to the many stakeholders in vocational education, including but not limited to, the teacher and the program director.

Enrollment: Turning to enrollment first - suppose a goal of a program was enrollment in a vocational education class that was representative of the eligible school population in terms of gender, and that the effectiveness score (actual divided by planned) was .70 x 100 = 70%. What modifications would improve program effectiveness? Among the possible reasons for the less-than-perfect effectiveness ratio might be:

information about the program was not available equally to men and women. Perhaps most students enroll in a course primarily through word-of-mouth from other students. If earlier courses had sex-biased enrollment, the informal network would be sex-biased itself, and an assertive outreach program might be needed to bring information equally to both sexes.

the course value might seem differentially attractive to men and women. Perhaps the course is seen as one in which students of different sex would have differential failure rates (for example, 50% of the girls who take automotive mechanics--all two of them--may have failed in the past). Students may believe that the content would be useful only to one gender (for example, a belief that men don't need home economics), or feel that the teaching situation would be congenial only to one sex. The value of the course would need to be equal if equal enrollments were expected.

parents or spouses might not support student enrollment. Parents are cited by the students themselves as the single most important influence on their choice of high school courses. Among post-secondary students, spouses are cited as the most influential. If these influential others discourage enrollment, outreach to the students alone would be insufficient to change gender distributions.

enrollment is first-come, first-served. Some courses may be chronically overenrolled and selection may be made on a first-come, first-served basis. Students considering enrollment in non-traditional courses may be last to enroll. Changing the selection criteria, urging early enrollment or opening more sections may be necessary in this case if effectiveness on the enrollment criterion is to increase.

the time, costs or location are convenient only to one gender. A welding course given in the evening in an inaccessible site with poor public transportation and badly lighted streets might not attract many women. A course in parenthood education given in the middle of the day in a maternity hospital child-care center might not attract many young men.

discouraging instructor or counselor attitudes. Students may discuss programs with counselors or instructors prior to enrolling. While many instructors or counselors may encourage students to explore non-traditional courses, there are still many others who directly and subtly will discourage students from trying out non-traditional areas.

needs for more pro-active counseling. If a women wants to enroll in an office practices course, does the advisor provide information about wages, benefits and working conditions in other areas such as skilled trades? If a man enrolls in truckdriver training, does the advisor discuss the stresses the work conditions place on family life and help the man consider opportunities in fields such as paralegal work or social service delivery? To many counselors, sex-fair counseling means little more than not prohibiting enrollments. If a program wants to increase effectiveness in gender-fair enrollments, finding out whether counselors were pro-active, "neutral", or reactionary might be a valuable guide to improvements.

rate of change is already high even if absolute level is less than 100%. Perhaps the rate of change in sex-fair enrollment seen from a five year perspective indicates that at present rates, enrollment will be sex-fair in three years if the program does nothing except to continue whatever it has been doing right. While inadequate progress can not be excused if achieving sex-fair enrollment is a program objective, sometimes modifications slow down rather than maintain or speed up satisfactory rates of progress.

This brief hypothetical example suggests the diversity of reasons for a less-than-perfect effectiveness score on enrollment. The cost, effort, and feasibility of program changes based on one explanation (for example, the time/location explanation) might differ considerably from the cost, effort and feasibility of modifying enrollment rates if the primary reason is spouse or parent resistance. The effectiveness figures alone are an inadequate guide to knowing what to do next. Particularly where different actions would seem appropriate for different explanations, cost/effectiveness analysis requires process or education evaluation as part of planning.

Completion: As a second example, suppose the completion rate of a course was lower than desired. Among the alternative explanations might be:

learners were leaving when their own goals were achieved. The course might be scheduled as a twelve-month program, but many of the non-completers might have learned enough in six months to meet their

own objectives, such as adequate information for informed consumerism or enough training to enter full-time employment. Clues to this explanation include finding out that most drop-outs left to take full-time employment in a related job; and that many reported that the course satisfied their own goals at the time of enrollment.

learners found that the prospectus and the content differed. A student signing up for an architecture course to obtain some practical information on home layout who found the course was mostly built around drafting techniques and building standards might well drop-out early on. High rates of non-completion after a week or so in the program might point to misinformation about the nature of the course. Learners might sensibly switch rather than waste their time and money.

the primary reasons for enrollment were to qualify for other benefits. Some learners may never have been bona fide students. They may have enrolled only to qualify under certain public laws for other benefits and have dropped out as soon as they had been enrolled long enough to qualify for these benefits.

teaching may have been poorly suited to the learners. Not all teachers are as skilled or diligent as they should be, and not all skilled, diligent teachers can adapt their teaching style to the needs of diverse learners. Poor instruction might be a reason for high non-completion rates.

equipment and facilities might be inadequate. Over-crowded facilities which did not permit students to have adequate use of equipment (for example, only one of the expensive new word processors in an advanced secretarial class), obsolete equipment, or facilities inconducive to learning could account for high drop-out rates. While excellent facilities do not in themselves the excellent program make, adequate learning with inadequate facilities may be difficult to achieve.

the course may be part of a larger program or school which is poorly administered. Suppose the completion ratios of Livestock Production programs were being compared across a State, and one program was clearly very low in completion rates. The program might be

embedded in a school with such poor administration and management that all courses have low completion levels. The secondary school principal is emerging as the single most important factor in both safe and effective schools. The course itself might have no room for improvement, but it might be part of a school in which the principal was an unskilled manager.

lack of funds or presence of family pressure. Among girls, pregnancy is the single most frequent cause of dropping out of secondary school. Among boys, particularly in low-income areas, lack of money to continue in school or poor general achievement are tied as reasons for non-completion. The course itself might have little to do with retention or completion; availability of other services for learners might be crucial in some situations if retention rates are to improve.

selective retention may suggest ways to increase completion: are the non-completers the brightest students at time of enrollment? The less able students? Knowing who drops out can be a readily obtainable and useful clue to program modifications.

Knowing what to change to improve retention requires considerable examination of the reasons for non-retention. Again, the courses of action suggested by finding out completion is very low for all programs in a given school, by discovering that most non-completers are leaving because their own goals have been satisfactorily fulfilled, or knowing that almost all drop-outs were never bona fide students would lead to considerably different directions for program deletion or expansion. Process studies of what is happening within the program together with information on effectiveness would be better guides for action than effectiveness data alone.

Placement: As a third and last example, suppose the program being reviewed had high placement rates. Would this mean that the program should be expanded? This example is given lest it be assumed that only low effectiveness rates need to be examined. In program planning and decisionmaking, as this section may illustrate, knowing what apparent success indicates can be as important as considering alternative reasons for ineffectiveness. Among the reasons for the high placement rates in the hypothetical program might be:

an unprecendented, one-time expansion of the job market. It is common that when there are more jobs than skilled personnel, more people are employed up to the point where so many people are attracted into the labor market by the availability of work that the rate of job creation is outstripped by rate of entry into the work force. High employment rates could be due to a sudden increase in job availability (for example, the rapid job creation associated with construction of the Washington DC METRO system).

an assertive placement system. High employment rates could be due to an aggressive placement system for that program which gets its graduates first in line for the relatively few jobs available in the community. If all local programs were equally assertive, the placement rates would drop for the apparently effective program.

low competition. Is the program the only source of workers for the field? Perhaps other local schools offering similiar programs have closed or the area was becoming unattractive for in-migration. The high employment effectiveness ratios might be a by-product of the employer's willingness to hire almost anyone.

no preferred alternatives to employment. High employment rates among program graduates might be due to the low attractiveness of other alternatives. Loss of subsidies for not entering the labor market, for example, or shifting the attractiveness of payment for not working versus employment through increases in the minimum wages or decrease in welfare payments could increase the willingness to work. Changes in policy regarding the family, the acceptability of part-time work, enthusiasm for return to full-time schooling, or unemployment compensation differentials could affect employment rates independent of the program's intrinsic merit. While data are usually protected against these variables by referring to "employment rates among those program graduates who wish to work", other data may refer only to employment rates among all program completers.

excellent technical training may be the basic reason for high effectiveness ratios on employment. This is usually the first explanation of high effectiveness on employment criteria and is included as a reminder that the program may be doing an outstanding job of developing excellent work skills where these are required for job entry.

graduates possess desirable worker habits due to the program itself. The program may have been responsible for developing good interpersonal skills, excellent work habits, a sense of responsibility, good communications skills and other personal habits sought by employers.

applicants are selected to be highly employable. High levels of effectiveness on the criterion of employment may be due to selection into the program of individuals who under almost any circumstances would be offered work and would be likely to keep it. Some programs with low effectiveness on employment may be serving an applicant pool which is hard-to-employ even with adequate skills and training.

employers may be offering highly desirable working conditions. Employers in an area may be offering such enlightened working conditions that employees are unlikely to leave the company once they are hired. Such excellent conditions may boost employment rates due to the artifact of having fewer people between positions than for equally good programs serving learners in areas where employers are less enlightened.

This example, chosen to illustrate the need for process information before expanding an apparently successful program also has implications for action alternatives. The program which has succeeded in providing superior skills or attitudes may be the one to expand, providing it is feasible to do so and that effectiveness would not be reduced were the program offered on a larger scale. Expansion of a program reporting high employment ratios which are attributable to local employer enlightenment or to selection of only highly employable trainees might make less sense.

Strategies for Improving Vocational Education Program Effectiveness

Four general strategies for improving effectiveness will be discussed here. These are: (1) changing the nature of the population served, (2) changing the program, (3) changing the environment of which the program is part, and (4) leaving it alone. The next sections consider each of these at somewhat greater length.

Different Students: Not all programs can be everything to everyone. Most programs are very effective for some students, moderately effective for others, and ineffective for some. These students are fairly identifiable from analyses of outcome data. If it is not possible to modify substantially either the program or the situation, one strategy for improving effectiveness is to focus on the students served best by the program in its present form. As an example, suppose a program apparently is not effective by important criteria for students with multiple personal problems, for students involved heavily in drugs or alcoholism, or for students who are of National Merit calibre. One way to improve effectiveness of this program might be to provide prospective students with the fullest information about which ones probably will not do well in the program or to select students to maximize effectiveness. There is little wrong with this approach, as long as personal characteristics such as gender, ethnicity or handicapping condition (all prohibited by law) are not used as direct or indirect screening devices. If alternative programs of greater effectiveness for students who should be screened out are available, the selective recruitment could improve efficiency as well as effectiveness.

Another approach to the 'different students' strategy of improving effectiveness is greater cooperation of vocational education programs with feeder schools. If lack of prerequisite training in spatial skills, for example, is a primary reason for low program effectiveness on some criterion, the vocational education program could take the initiative in letting feeder schools know of this need and in helping the feeder schools increase the pool of applicants who can be served by the program. Particularly for achieving equality of opportunity, proactive efforts on the part of the vocational education programs to help improve entry-level pool of applicants could be a more effective strategy for improving program effectiveness than varying instructors or curricula after remediation is needed.

Changing the program : Changes to the program could include varying access, content, and process. Greater effectiveness on criteria such as enrollment might come from changing when the program was offered (time of day, frequency, and time of year), where the program is offered

(dispersed versus more centralized location; on-site or within a school) and the tuition or other financial requirements of the program. Increased access also includes changes in outreach, counseling procedures and information for prospective students and their families. As an example, many colleges are offering mini-courses for family vacations, some of which provide academic credit. Learning networks, using community resources to link learners and instructors, a la Illich, are spreading. Alternate uses of empty primary school buildings have included opening neighborhood learning centers.

Changes in the content of the program have included deletion of entire courses (for example, the decision of an area vocational-technical school not to offer any more cosmetology courses on the basis that the market was saturated) and addition of new programs (for example, in small business management and in light aircraft maintenance and repair). Other changes could include modification of components; of course duration; of criteria of acceptable progress and completion; of procedures for placement and follow-up; and of relative emphasis on skills versus attitudes.

Changes in the teaching/learning process have been popular. Comparison of the strategies at secondary and postsecondary levels suggests quite differing beliefs about the best way to improve teacher effectiveness. At the secondary level, State requirements, teacher unions and schools of teacher education combine to limit considerably who can be hired to teach. Requirements for having earned one's living in the vocational subject taught are often minimal; requirements for completion of process-oriented courses are sometimes maximal. At the postsecondary level, there are few State requirements and few situations involving negotiated labor/management contracts. Few schools of teacher education prepare professors of physics, engineering or political science. At the postsecondary level, content and experiences are assumed more important than the teaching process training, and requirements for having earned one's living in the vocational subject taught are correspondingly greater. Since few educational planners can directly influence certification requirements or union agreements, the strategies to improve the teaching/learning process often emphasize training at the secondary level and recruitment/selection at the postsecondary level.

Changing the environment: Changing the environment is a little-used strategy; yet it may yield considerable return in improving effectiveness on some criteria. A large proportion of student drop-outs, for example, are due to economic and social service needs beyond those which an individual teacher can be expected to meet. Cooperation among community service agencies, employers, and labor unions to improve human resource support, the preparation offered by the school, and the climate of the workplace are among the new directions in vocational education. A great deal of youth employment is due to job switching--voluntary job changing. Attention by vocational educators to modifications in the workplace which make job-keeping more attractive (for example, smaller and more rapid steps in upward mobility within a firm); assurance that an entry-level job isn't a dead-end job in the company; improved working conditions and supervisor attitudes, could have substantial payoffs in improved effectiveness where employment is among the criteria.

Leaving the program alone: The last strategy may be the most attractive under three circumstances. First, imperfect as the program is, there are not alternatives which are feasible, and it is not reasonably clear why the proposed modifications should be expected to improve effectiveness. Second, progress is being made at an acceptable rate. Third, the probable increase in effectiveness, relative to the effort required, is low. As an example, a program serving a high risk population might be able to increase retention rates from 50% to 55% by considerable effort, but the 5% increase may be a relatively unattractive investment, particularly if the reason for the low retention rate is primarily circumstances beyond the program's control.

In summary, these four broad strategies (different students, different curriculum, changing the environment, or leaving the program alone) may be useful categories for thinking about the development of alternatives. They are, however, only a quite open framework into which the detailed process information for each program might fit. The best answers to improved effectiveness rest in greater understanding of what

inside the program's operations influences the measures of effectiveness selected. Data from students, staff, administrators, site visitors, and vocational education directors of other programs are among the many resources available for assuring that results of these new approaches to program analysis can indeed become a powerful, well-used tool for managers, teachers, and the public for improving program effectiveness.

GLOSSARY OF TERMS

CALIFORNIA OCCUPATIONAL INFORMATION SYSTEM (COIS) - a system that provides its users with accurate, timely, and reliable occupational supply/demand information, as well as data on other social and economic factors related to population, industry, and occupations that are useful in planning and evaluating vocational training programs.

COMPLETIONS - those students who have finished a planned sequence of courses, services, or activities designed to meet a vocational objective and which purports to teach entry-level job skills or who have been enrolled and attended a program of vocational education and leaves the program or institution without completing the program. This includes persons who leave the program voluntarily before its formal completion because they have acquired sufficient entry-level occupational preparation to work in the field.

COST-EFFECTIVENESS - a criterion for judging program effectiveness in relation to associated unit cost; the degree of goal attainment per unit cost.

CURRENT OPERATING EXPENSES - the current annual operating expenditures of a school/school district excluding expenditures for food services, community services, facility acquisition and construction, object classifications 6000 - capital outlay, and 7000 - outgoing tuition (except 7250, Current Expense for Regional Occupational Centers or Regional Occupational Programs).

DIRECT COSTS - expenses that can be separately identified and charged as a part of the cost of a program, service or department.

DIRECT SUPPORT CHARGES - charges for a support program and services that directly benefit other programs.

DISADVANTAGED PERSON - a person (1) with an academic or economic handicap and, (2) who requires special services, assistance, or programs to enable him/her to enter into, progress within, or successfully complete a vocational education program.

Academic disadvantage: A person who (1) lacks mathematical skills; (2) lacks reading and writing skills; or (3) performs below grade level, as documented by scoring in the first quartile of a standardized achievement or competency test or language dominance test approved by the State Department of Education and normed for the appropriate grade or age level.

Economic disadvantage: (1) a person whose family income is at or below national poverty level; (2) a person whose parents or guardians are unemployed other than by their own choice; or (3) a person whose parents are the recipients of public assistance; or (4) a person who is institutionalized or under county or State guardianship.

EFFECTIVENESS - a measure of the achievement of program objectives; the extent to which previously specified objectives are achieved.

EFFICIENCY INDEX - a measurement of the degree of goal attainment in regards to the objective dealing with cost per student served.

HANDICAPPED - a person who is mentally retarded (developmentally disabled), hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionaly disturbed, orthopedically impaired, or other health-impaired persons such as those with multiple disabilities, communications disabilities, learning disabilities, neurological limitations, and biochemical limitations; and who by reason of the above: (1) requires special education and related services; (2) cannot succeed in the regular vocational education program without special educational assistance; and (3) requires a modified vocational education program.

INDIRECT SUPPORT CHARGES - routine services not performed as a special service for a particular program but allocated to using programs.

GLOSSARY OF TERMS (Continued)

LIMITED ENGLISH-SPEAKING - a student who has not developed the English language skills of comprehension, speaking, reading, and writing sufficiently to benefit from instruction presented in English or who comes from a home where a language other than English is spoken.

OBJECTIVES/DESIRED OUTCOMES - expected results or specified targets which are to be obtained from the vocational instructional program/service.

PERFORMANCE RATIO - a criterion by which to evaluate the degree of program management performance base on program effectiveness and cost efficiency.

PLACEMENTS - those individuals who are identifiable by name as program completers, and, by a subsequent follow-up procedure are also identifiable as workers in those occupations for which the program was designed, or are continuing advanced training for the same occupational field of study.

PROGRAM/COURSE INVENTORY (PCI) FORM - identifies vocational education instructional programs in terms of courses and their related occupations. It is also a primary input document for the PESDS.

PROGRAM COSTS - those expenditures necessary to operate a vocational instructional program/service at the local, school and/or district level.

PUBLIC EDUCATION SUPPLY DATA SYSTEM (PESDS) - a computerized method for tracking the flow of students through vocational training programs at both the community college level and secondary school level. The PESDS generates, by computer, information to determine enrollments and completions for completing the VEA statistical reports as well as providing supply/demand information.

GLOSSARY OF TERMS (Continued)

STUDENTS SERVED/ENROLLMENT - the official entrance of a student into a vocational education program at the level at which a vocational objective can be stated or implied.

UNIT COST - resources consumed for a unit of output.

Unit Cost(s): cost per student served, cost per completion, cost per placement.

Unit of output(s): number of students served, number of completions, number of placements.

VOCATIONAL PROGRAM - a planned sequence of courses, services, or other educational activities designed to prepare individuals for employment in a specific occupation or cluster of closely related occupations.

Attachment A

INSTRUCTIONS FOR COMPLETING
THE PROGRAM/COURSE INVENTORY (PCI)

VOCATIONAL EDUCATION PROGRAM/COURSE INVENTORY FORM

PCI

EXPLANATION AND INSTRUCTION MANUAL

October 1978

VOCATIONAL EDUCATION PROGRAM/COURSE INVENTORY FORM PCI

EXPLANATION AND INSTRUCTIONAL MANUAL

A Publication of
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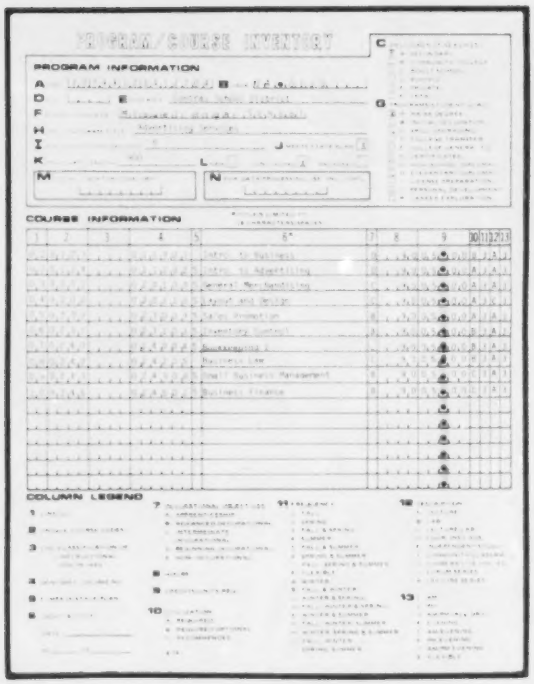
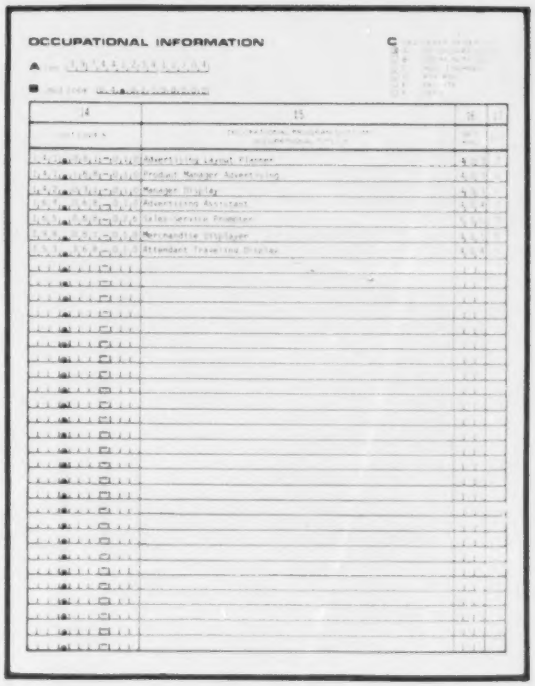
Introduction

Meaningful information is the result of carefully collected data incorporated into a formally organized branch of knowledge. Before information can become available, the data from which it is derived must be collected from all pertinent sources. The data collected must be of a uniform quality, in a standard format, timely, accurate, and pertinent to the subject.

This was the logic which led to the development of the data collection instrument known as the "Program/Course Inventory" (PCI). The form was developed by the California Occupational Information System (COIS) to address these criteria. Completed PCI forms (Figure A) define vocational education instructional programs in terms of the courses of which they are comprised and their occupational objectives.

FIGURE A





According to the National Center for Educational Statistics, a vocational program is defined as a planned sequence of courses, services, or other educational activity designed to prepare individuals for employment in a specific occupation or cluster of closely related occupations. The PCI is a recommended means of defining a vocational program by its courses and occupational objectives. The data contained on the PCI does this by:

1. utilizing existing State and National coding systems to describe the scope and content of specific vocational training programs;

2. specifying the occupations for which a student will be trained upon completion of a given program;

3. indicating information pertaining to the availability and operational aspects of the program;

4. indicating the purpose of each course within a program; and

5. indicating the minimum requirements needed by the student to complete the program.

PCI Applications

1. Program/Course Approval

Every college/school district has some means, i.e., curriculum committees, administrative councils, boards of education, to approve courses and programs. Utilizing the PCI in this process enables decision-makers to see the relationship of one course to another, the relationship of the program to specific occupations, and other technical relationships such as instructional time, facility utilization, etc.

The State Department of Education has responsibility for approving courses offered by Regional Occupational Programs and Centers (ROP/C). Although not presently used for this purpose, the PCI contains many of the same information elements as the current VE 77 application for ROP/C Course Approval. The detailed information provided on the PCI can assist with the ROP/C course approval process.

Community colleges are subject to several approval processes before beginning actual delivery of a program and the courses that comprise it. The process starts with the completion of Form CC-EP-1 The Application for Approval of New Educational Programs (revised April 1977). There are a number of similarities in this form and the PCI; therefore, it is generally agreed that the PCI will help facilitate the completion of this form.

With passage of S.B. 1641, it is now necessary for the Chancellor's Office to monitor the operation of these courses and programs once they are approved. The PCI and its related computer generated reports can assist the staff of the Chancellor's Office with this task.

2. Program Articulation

The PCI has been used by several school districts to assist them in preparing required articulation agreements. Because of its design and associated definitions, the PCI enables secondary vocational education directors, community college deans, ROP/C directors and adult education principals to analyze program content. This process will improve the student's mobility through anticipated programs offered by various participating institutions without being required to repeat certain competencies.

The PCI also facilitates the identification of courses which are common to several programs. This type of horizontal program articulation is particularly valuable to the student who changes program objectives and desires to know other potential options available. Applied in an administrative capacity, horizontal articulation analysis is important when considering what the expansion efforts of a particular program will have on other related programs.

3. Delineation of Function

The PCI is useful to vocational education program administrators who are faced with the problems of justifying the operation of a particular program. Such factors as instructional time required to offer the program, complexity of subject matter, related occupations, and numerous other details are displayed on the PCI. The different information elements are critical to those delineations of function process.

4. Analysis of Program Operation

Each program administrator needs to monitor the programs for which he/she has responsibility. The PCI and its related computer reports* facilitate analysis of student enrollment rates, completion

* *These computer reports are generated by the Public Education Supply Data System (PESDS).*

rates, placement rates, and other important program performance characteristics. These reports are also useful for facility and staff utilization management studies. A monitoring process should be an important part of the total program evaluation effort.

5. Analysis of Program Curriculum

Completion of the PCI serves as a verification process to ensure that the instructional content of the program matches the requirements for the occupations associated with the program. The Dictionary of Occupational Titles, (Third/Fourth Edition) serves as a useful tool for conducting a preliminary analysis of job requirements in relationship to program curriculum. This analysis can alsc also be used by the program advisory committees to further verify instructional content, curriculum/occupation relationships and course articulation.

6. Allocation of Resources

When used with other information such as supply/demand reports, the PCI information can be used by vocational education program administrators to help determine the allocation of fiscal resources to specific programs. For example, the proper identification of associated occupations with the program in question enables the administrator to check student placement rates in the specified occupation. Those programs with low placement rates, but with high potential placement (determined from the Supply/Demand Report and local study) may require more funds allocated to placement.

7. Occupational Counseling and Guidance

When used by a skilled counselor, the PCI can reveal to the student the relationship among specific programs, the courses which comprise them and the occupations which they are preparing the student to enter. Before pursuing a particular program, the student should be knowledgeable of certain additional factors which are also identified on the PCI, i.e., commitment of the time it takes to

complete the program, minimum requirements, and course options available. Other information contained on the PCI (such as related math and language requirements for the job, physical abilities, mental aptitudes, and the geographic location of the program) is also necessary to assist students in making meaningful occupational decisions.

Instructions for Completing the Program/Course Inventory Form (PCI)

The instructions that follow are a suggested step-by-step procedure for completing the Program/Course Inventory (PCI) Form. As users become familiar with the form, they may wish to make modifications to meet the unique needs of their Local Educational Agency (LEA). The program information items (A, B, C, D, etc.) and the Course/Occupational information columns (1, 2, 3, 4, etc.) are NOT in sequential order in the instructions but rather in the anticipated order that the agency would complete the form. Definitions have been incorporated into the instructions for clarification.

SIDE I

Step One Public Schools Only (Secondary, Community College, Adult, ROP/Cs)

Item A CDS Code (County/District/School):

Enter the appropriate 14 digit CDS code. CDS codes can be obtained from the California Schools Directory. CDS codes for ROP/Cs have been provided in Appendix A of this publication.

Step Two Public Schools Only (Secondary, Community College, Adult ROP/Cs)

Item E District Name:

Enter the name of the district in which the program is physically located.

Item F School/College Name:

Enter in item F the name of the school/college at which the program is physically located. If the program is being conducted off campus, i.e., community classrooms, mobile units, contracted programs, etc., this space may be utilized to enter the name of the physical site location.

Item M Local Locator Code (Optional):

To further identify off campus sites, it is suggested that Item M be utilized to record the geographical location by census tract identifiers. Census tract identifiers and codes are available from county/local planning departments or from your COIS socioeconomic reports (Appendix B).

Note: Item E can accommodate a maximum of twenty-four (24) positions. Item F can accommodate a maximum of eighteen (18) positions including space between words. When necessary, abbreviations should be used.

Step Three All Users

Item B USOE Code:

From the publication Standard Terminology for Curriculum and Instruction in Local State School Systems (Handbook VI), choose the most appropriate United States Office of Education code/title that defines the program being inventoried. (See the following note of explanation for coding of exploratory and general work experience programs.) Although the USOE code has ten positions, in most cases only the first six positions are needed to define the program. In some cases, the codes must be

extended beyond the sixth position to differentiate between two programs sharing the same six position codes, for example:

01.010206 Plant Pathology
01.010207 Entomology

Note: Handbook VI need not be consulted for two USOE Categories; "Exploratory Work Experience" and "General Work Experience." In California these USOE areas will be identified for State reporting requirements as follows:

00.01 Exploratory Work Experience
00.02 General Work Experience

A separate PCI for each of these work experience programs should be completed if applicable.

Item H USOE Program Title

Enter the USOE program title that corresponds with the appropriate USOE code found in Handbook VI.

Item J Program Meets State Plan (For Vocational/Occupational Programs Only):

Mark an "X" in the box if the program identified in Item B meets the State Plan for Vocational Education, 1977, and the policies/procedures issued by the State Department of Education and the Chancellor's Office of the California Community Colleges.

Step Four All Users

Item L New, Continuing and Proposed Programs:

Place an "X" in the appropriate box to indicate if the program is new, continuing or being proposed.

New: A program which is currently operating and is in its first school year of operation.

Continuing: A program which is currently operating and has been in operation for more than one school year.

Proposed: A program which is not currently operating, but is proposed to be operational within one school year.

Step Five All Users

Item N Data Processing Identification Code (Data Processing Use Only-Optional):

An optional item to be used by data processing centers that have assigned unique school identification codes other than the State assigned CDS codes. A maximum of eight positions have been allocated for this purpose.

Step Six All Users

Item C Deliverer of Services:

Place an "X" in the box opposite the type of instruction that operates the instructional program and receives operational funds for the program via State appointment, student fees, or CETA.

Note: When any of the following situations occurs within a public school, two boxes should be marked with an "X."

1) When a public school offers a program as a result of contracting with a private agency.

2) When a public school operates a program through CETA funding.

3) *When a public school contracts with another public school.*

Step Seven - All Users

Column 6 Course Title:

List the course titles which comprise the USOE program identified in step three.

Note: Column 6 can accommodate a maximum of eighteen (18) positions including the spaces between words. When necessary, abbreviations should be used.

Step Eight All Users (If Applicable)

Column 4 District Course Number (If Applicable):

List the district course codes which relate to the courses listed in column 6. District course codes are used by school/college districts to identify their courses for scheduling and other purposes and are usually found in the District Master Course Directory.

Column 2 Unique Course Codes:

Identify each course listed in column 6 by a unique four-digit code (see Figure B). It is suggested that this unique code be numeric and must be limited to four (4) positions. For example:

0181 Drafting (First Year)
0182 Drafting (Second Year)
0183 Drafting (Third Year)

FIGURE B

COURSE INFORMATION

* TITLE IS LIMITED TO 18 CHARACTERS/SPACES

1	2	3	4	5	6*	7	8	9	10	11	12	13
0 1	0 1 8 1		0 1 8 1 1 0	S	Drafting I							
0 2	0 1 8 2		0 1 8 2 1 1	S	Drafting II							
0 3	0 1 8 3		0 1 8 3 1 2	S	Drafting III							
0 4	9 2 0 1		9 2 0 1 0 0	S	Cooperative Vocational Ed.							
0 5	9 6 0 3		9 6 0 3 0 0	S	Work Study							
0 6	9 5 0 2		9 5 0 2 0 0	S	Vocational Work Experience							

The only limitation in assigning unique numeric codes to courses is in the coding of work experience programs. Work experience programs must be coded with a nine (9) as the first position in the four position code and must be assigned to the USOE program with which they are associated.

The following is a suggested coding system for the various types of work experience programs:

91XX Apprenticeship
92XX Cooperative Vocational Education
*93XX Exploratory Work Experience
*94XX General Work Experience
95XX Vocational Work Experience
96XX Work Study
97XX Exemplary

Note: *School districts utilizing the Public Education Supply Data System (PESDS) and contracting with Regional Data Processing Centers have been identifying their courses*

* See Step Three

in column 2 with California Course Codes (CCC). The use of the CCC is still recommended for uniquely coding courses for this process or for the PESDS.

Column 3 Course CID Code (Classification of Instructional Disciplines) Community College Use Only:

Enter the CID code associated with each course listed in column 6.

Item D Program CID Code (Community College Use Only):

Enter the CID code which reflects the program intent and course content of the majority of courses listed in column 6. For example, a college which has gone through the Chancellor's Office program approval process will have a list of courses which were submitted under a specific CID code such as Banking and Finance 0504. If the majority of courses listed in column 6 are from other disciplines such as Accounting 0502 or Business English 1501, these discipline codes will be reflected in column 3 opposite the applicable courses in column 6.

Step Nine All Users

Column 1 Line Number:

Numerically sequence each course listed in column 6 beginning with the number 01 and ending with 16. If more line items are needed, use additional forms as necessary. When using additional forms, complete only items A, B, and C for program identification purposes and continue the numerical sequencing of the courses with the number 17.

Step Ten All Users

Column 5 Course Meets State Plan:

Identify with the letter "S" all courses listed in column 6 which meet the California State Plan for Vocational Education, 1977, and the policies/procedures issued by the State Department of Education and the Chancellor's Office of the California Community Colleges.

Step Eleven All Users

Column 7 Course Occupational Objectives:

Based upon the following definitions, identify the occupational objective of each course comprising the program.

A. Apprenticeship

An "A" designated course is part of an approved apprenticeship program.

B. Advanced Occupational

A "B" designated course is offered in one specific occupational program and clearly identifies the enrolled student as a major in this program. "B" courses will generally be those taken by students in the advanced stages of their occupational program.

C. Intermediate

A "C" designated course is generally offered in several related occupational programs within a broad program field, i.e.; 01 Agriculture, 04 Distributive Education,

07 Health Occupation, etc. "C" designated courses will generally be taken by students in the middle stages of their occupational programs.

D. Beginning Occupational

A "D" designated course is at the introductory level and may be included in more than one occupational program. Non-occupational, as well as occupational majors, often enroll in "D" courses. For borderline courses (between "C" and "D" designations), it is suggested that the deciding factor should be an estimate of the number of students taking the course whose enrollment is other than vocational education. If the vocational education majors are in the minority, then the courses should be designated "D."

E. Non-occupational

An "E" designated course is primarily designed for non-occupational majors who desire subject acquaintanceship.

Occupational objective classifications are used to describe the occupational purpose of the courses within a defined USOE training program. The codes used to distinguish the occupational objective for each course should be assigned according to the judgment and the experience of the local vocational education administrator in conjunction with the opinion of the teacher(s) assigned to the program. The assignment of these codes should be based on the specific content of each as it relates to other courses within the total training program. Also, the code assignment process should consider goals of the student, i.e., is the course designed to prepare for entry-level employment or job upgrading.

Step Twelve All Users

Column 8 Course Hours:

Enter the minimum number of hours required to complete the formal instruction (lecture/lab/on-the-job training) assigned to each course listed in column 6.

Note: Community Colleges Only

Courses that are approved "Craft Classes" for adults (Title Five of the California Administrative Code 58140 and 58141) must identify in column 8 the maximum number of course hours to be allowed for each student to complete the course.

Item K Program Length (Hours):

Add the number of hours (column 8) associated with all the courses listed in column 6. This sum will represent the total number of hours for the program and should be entered in item K.

Step Thirteen All Users

Column 9 Credits/Units Required:

Enter all the required number of units or credits to be granted upon satisfactorily completing the courses identified in column 6.

Step Fourteen All Users

Column 10 Course Utilization:

Assign to each course listed in column 6 a code designation of (A) required, (B) required optional, or (C) recommended.

This code identifies course significance in relationship to the total program and its occupational objectives. For example, the PCI form, shown on page 19 for a stenographic program identifies Typing I, Typing II, and Shorthand I as required courses. This means that these three courses contain all the necessary content to gain the skills needed to successfully perform as a stenographer. All other courses may be taken by a student for the purpose of acquiring either general knowledge or additional occupational preparation.

These code designations may also be used to determine unduplicated program enrollment count. The National Center for Educational Statistics (NCES) has defined a program enrollment as the official entrance of a student into a vocational education program at the level at which a vocational objective can be stated or implied. Program enrollments should represent an unduplicated count meaning that an individual is to be counted only once regardless of the number of programs in which he or she is enrolled during the year. Persons who were enrolled in more than one program during the year, or who transferred from one program to another, must be counted as being enrolled in that program most recently entered the program for which he or she has the most contact hours of instruction.

The Public Education Supply Data System (PESDS)* defines a program enrollment as follows: A student is considered enrolled in a vocational education program when he or she is taking credit for (1) one or more required or required optional courses which are included in a regular vocational training program as identified on the Program/Course Inventory (PCI), or (2) any designated course comprising a defined 09.01 series Home Economics program which meets the State Plan for Vocational Education, 1977, and policies and procedures issued by the State Department of Education, or (3) any designated course

* *The Public Education Supply Data System (PESDS), a sub-system within the California Occupational Information System (COIS), is a computerized system that generates information to complete the VE projected enrollments, the VEA 48s, and portions of the 45s. It also provides the basis to produce supply/demand information, an essential data requirement for program planning.*

comprising a 10.00 series Industrial Arts program which meets the State Plan for Vocational Education, 1977, and policies and procedures issued by the State Department of Education.

Step Fifteen All Users

Item I Minimum Completion Requirements:

Enter the minimum number of courses a student would be required to take to complete the program. As defined by the National Center for Educational Statistics (NCES), program completers are those students who have finished a planned sequence of courses/services designated to meet a vocational objective and purports to teach entry-level job skills and are available for full-time employment. The PESDS defines a program completion as follows: A student will be considered a program completer when he/she has successfully completed the minimum number of "A" required and "B" required optional courses as indicated in item I. Using the following Stenographer's PCI (Figure C) as an example, a total of ten courses makes up this program of which three are indicated as being required "A," five courses are required optional "B," and two are recommended "C." In order for a student to successfully complete this program and have the skills necessary to obtain employment, at least five out of the ten courses must be completed. Therefore, of the five courses that are required optional, a student has the flexibility of selecting and completing at least two courses. In order to record the program's minimum completion requirements in terms of the number of courses needed, item I has been provided. For this example, the number five (three required courses plus two required optional courses) should be recorded in item I.

FIGURE C

I MIN COMPLETION REQ'MTS 5

PROGRAM/COURSE INVENTORY

PROGRAM INFORMATION

A CDS 5,6,7,4,3,0,2,2,5,6,9,3,8,

B USDE 1,4,0,7,0,3,

D CID

E DISTRICT Essex Unified

F SCHOOL/COLLEGE Essex High School

H USDE PROGRAM TITLE Stenographers

I MIN COMPLETION REQ'MTS 5

J MEETS STATE PLAN ☐

K PROGRAM LENGTH 1080 Hrs.

L NEW ☐ CONTINUING [X] PROPOSED ☐

M LOCAL LOCATOR CODE (OPT) 0,6,0,1

N FOR DATA PROCESSING USE ONLY (OPT) 5,6,6,7,0,3,2,1

C DELIVERER OF SERVICES
- A. SECONDARY
- B. COMMUNITY COLLEGE
- C. ADULT SCHOOL
- D. ROP/ROC
- E. PRIVATE
- F. CETA

G PROGRAMS/STUDENT GOALS
- A. AA-AS DEGREE
- B. INITIAL OCCUPATION
- C. SKILL UPGRADING
- D. COLLEGE TRANSFER
- E. COLLEGE GENERAL ED
- F. CERTIFICATES
- G. HIGH SCHOOL DIPLOMA
- H. ELEMENTARY DIPLOMA
- I. LICENSE PREPARATION
- J. PERSONAL DEVELOPMENT
- K. CAREER EXPLORATION

COURSE INFORMATION

*TITLES LIMITED TO 18 CHARACTERS/SPACES

1	2	3	4	5	6*	7	8	9	10	11	12	13
0,1	0,1,2,3				Typing I	E	0,9,0	0,5,0,0	A	1	C	3
0,2	0,1,2,4			S	Typing II	D	0,9,0	0,5,0,0	A	2	C	3
0,3	0,0,8,2				Shorthand I	D	0,9,0	0,5,0,0	A	1	C	3
0,4	0,0,8,3			S	Shorthand II	C	0,9,0	0,5,0,0	B	2	C	3
0,5	0,1,1,0			S	Transcription	B	0,9,0	0,5,0,0	B	3	C	3
0,6	0,1,3,0			S	Office Practice	B	0,9,0	0,5,0,0	B	3	C	3
0,7	0,0,7,0			S	Office Machines	B	0,9,0	0,5,0,0	B	3	C	3
0,8	0,0,5,2				Business English	E	0,9,0	0,5,0,0	B	3	A	3
0,9	9,6,x,x			S	Work Study	B	1,8,0	1,0,0,0	C	3	H	3
1,0	9,2,x,x			S	Cooperative Voc. Education	B	1,8,0	1,0,0,0	C	3	H	3

10
A
A
A
B
B
B
B
B
C
C

COLUMN LEGEND

1 LINE NO.

2 UNIQUE COURSE CODES

3 CID—CLASSIFICATION OF INSTRUCTIONAL DISCIPLINES

4 DCN—DIST. COURSE NO.

5 S—MEETS STATE PLAN

6 IDENT. & TITLE

DATE _____

PG. _____ OF _____

7 OCCUPATIONAL OBJECTIVES
- A. APPRENTICESHIP
- B. ADVANCED OCCUPATIONAL
- C. INTERMEDIATE OCCUPATIONAL
- D. BEGINNING OCCUPATIONAL
- E. NON-OCCUPATIONAL

8 HOURS

9 CREDITS/UNITS REQ.

10 UTILIZATION
- A. REQUIRED
- B. REQUIRED OPTIONAL
- C. RECOMMENDED

8-78

11 FREQUENCY
- 1. FALL
- 2. SPRING
- 3. FALL & SPRING
- 4. SUMMER
- 5. FALL & SUMMER
- 6. SPRING & SUMMER
- 7. FALL, SPRING & SUMMER
- 8. FLEXIBLE
- A. WINTER
- B. FALL & WINTER
- C. WINTER & SPRING
- D. FALL, WINTER & SPRING
- E. WINTER & SUMMER
- F. FALL, WINTER, SUMMER
- H. WINTER, SPRING & SUMMER
- J. FALL, WINTER, SPRING, SUMMER

12 DESCRIPTION
- A. LECTURE
- B. LAB
- C. LECTURE LAB
- D. COOR. INST. SYS.
- E. INDEPENDENT STUDY
- F. COMMUNITY CLASSRM.
- H. COOPERATIVE VOC. ED.
- J. FORUM SERIES
- K. LECTURE SERIES

13
- 1. AM
- 2. PM
- 3. AM/PM (ALL DAY)
- 4. EVENING
- 5. AM/EVENING
- 6. PM/EVENING
- 7. AM/PM EVENING
- 8. FLEXIBLE

Step Sixteen All Users

Column 11 Course Frequency:

Indicate the course frequency by entering one of the following codes:

1. Fall
2. Spring
3. Fall & Spring
4. Summer
5. Fall & Summer
6. Spring & Summer
7. Fall, Spring & Summer
8. Flexible this category can be used to define courses that start and end on an irregular basis, i.e., short-term courses.

A. Winter
B. Fall & Winter
C. Winter & Spring
D. Fall, Winter & Spring
E. Winter & Summer
F. Fall, Winter & Summer
H. Winter, Spring & Summer
J. Fall, Winter, Spring & Summer

Step Seventeen All Users

Column 12 Instructional Description:

Indicate the type of instructional method being employed by entering one of the following codes:

A. Lecture

A lecture course is one in which the teacher gives an oral presentation of facts or principles, the class frequently being responsible for note taking. This activity usually involves little or no pupil participation by questioning or discussion.

B. Lab

Learning activities carried on by pupils in a laboratory designed for individual or group study of a particular subject-matter area involving the practical application of theory through observation, experimentation, and research, or in the case of foreign language instruction involving learning through demonstration, drill, and practice. This applies also to the study of art and music, though such activity in this instance may be referred to as a studio experience.

C. Lecture/Lab

Those performance classes which do not have a separate lecture and laboratory session but whose subject content requires that lecture materials be interpreted at frequent and appropriate intervals throughout the class.

D. Coordinate Instruction System (CIS)

Coordinate instruction is a system in which a variety of technical methods including the use of mechanical and electronic devices, self-instructional materials, and other similar teaching techniques may be used. (Title Five of the California Administrative Code, 55301)

E. Independent Study

An independent study course is one in which a student contracts with an instructor to perform a specific amount of work over a prescribed length of time to receive a specified amount of credits/units.

F. Community Classroom

A community classroom is a site or series of physical locations in which occupational training programs are conducted. A community classroom has as its general purpose the expansion of occupational training opportunities by utilizing existing sites and facilities other than those of the public schools. A private postsecondary school under contract with a public school agency to provide occupational training pursuant to Education Code Section 30133 shall not be considered to be a community classroom.

G. Cooperative Vocational Education

Cooperative vocational education is defined as a program/course of vocational education for persons who, through written cooperative arrangements between the school and employers, receive instruction including required academic courses and related vocational instruction by alternating study in school with a job in any occupational field. Those two experiences must be planned and supervised by the school and employers so that each contributes to the student's education and to his/her employability. Work periods and school attendance may be on alternate half days, full days, weeks, or other periods of time in fulfilling the cooperative program.

H. Forum Series

A forum series course is an adult class which provides for discussion of public affairs under qualified leadership. (Title Five of the California Administrative Code, 581050-55)

I. Lecture Series

A lecture series course is an adult class concerned with regulated subjects of educational value excluding those in public affairs. (Title Five of the California Administrative Code, 58160-62)

Step Eighteen All Users

Column 13 Time Course Offered:

Indicate the time the course is being offered by entering one of the following codes:

1. a.m.
2. p.m.
3. a.m./p.m. (all day)
4. a.m./evening
5. p.m.
6. a.m./p.m./evening
7. flexible - this category can be used to define independent study or other courses that may not have a predetermined schedule.

Step Ninteen All Users

Item G Program/Student Goals:

Indicate with an "X" the classification or classifications that best define the program in terms of the perceived objectives of the majority of the students enrolled in the program. More than one box may be checked.

A. AA/AS Degree

A college degree authorized by the California Title Five Administrative Code in Associate of Arts (AA) or Associate of Science (AS).

B. Initial Occupation

Education and training for an entry-level occupation for a person not currently employed in that occupation or a related occupation. In this type of program, a student is normally considered to be of "preservice" or adult preparatory status.

C. Skill Upgrading

Education and training in skills that pertain to the student's specific occupation or related occupation normally within his current employment or industry. In addition, a student who requires upgrading or refreshing of skills for continuation or promotion is included in this category. Normally, this student is defined in the "inservice" or adult supplemental category.

D. College Transfer

College courses which are approved transfer courses to an accredited college or university.

E. College General Education

Those programs which offer intellectual and cultural experiences for the personal development needed by students to realize their full potential as individuals.

F. Certificates

A certificate of achievement is granted any student who meets the requirements based on units or work, residence, and scholarship. Normally, a certificate is for one-to-two semesters in an occupational program and requires completing between 15 to 30 units with a "C" grade average or better.

G. High School Diploma

Those courses which satisfy State and local board of education requirements for the awarding of a high school diploma.

H. Elementary Diploma

The pre-high school program which, upon satisfactory completion, designates that the individual has completed the eighth grade level of education.

I. License Preparation

Specific occupational programs requiring licensing by the State Department of Consumer Affairs. Normally, licensing preparation requires from one-to-four semesters of work and/or completion of an AA/AS degree.

J. Personal Development

Those courses which are designed to provide an individual with opportunity to increase proficiency in areas which may or may not lead towards a high school diploma or AA/AS Degree.

K. Career Exploration

Those programs which are designed to assist individuals in learning about careers in order to make informed and meaningful occupational choices.

SIDE II

Step Twenty All Users

Item A County/District/School (CDS) Code:

Enter the appropriate CDS code as defined under Step One.

Item B USOE Code:

Enter the appropriate USOE code as defined under Step Three.

Step Twenty-One All Users

Columns 14 and 14 DOT Codes and Occupational Titles:

Enter from the Dictionary of Occupational Titles (Third or Fourth Edition) the occupational titles(s) and corresponding code(s) for which the program is designed to train. This section of the Program/Course Inventory Form is used to define the USOE program in terms of its specific occupational objectives. The United States Office of Education published Vocational Education and Occupations OE-80061 and the California Manpower Management Information System Cross-Code Index, (Third Edition), Volume II defines vocational training programs in terms of occupations which have relationships to specific USOE training programs. The occupational titles and codes listed in the above publications reflect those occupations that might result from training. The purpose of this portion of the inventory is to have the deliverer of services select the most appropriate occupational titles and codes for which their training programs provide entry-level skills.

FIGURE D

OCCUPATIONAL INFORMATION

A CDS 5 6 7 4 3 0 2 2 5 6 9 3 1 8

B USOE CODE 1 4 . 0 7 0 3

C DELIVERER OF SERVICES
- A. SECONDARY SCHOOL
- B. COMMUNITY COLLEGE
- C. ADULT SCHOOL
- D. ROP/ROC
- E. PRIVATE
- F. CETA

14	15	16	17
DOT CODE/S	OCCUPATIONAL PROGRAM OUTCOME OCCUPATIONAL TITLE/S	GED RML	SVP
2 0 2 . 3 6 2 - 0 1 0	Shorthand Reporter		
2 0 2 . 3 6 2 - 0 1 4	Legal Stenographer		
2 0 2 . 3 6 2 - 0 1 8	Stenographer		
2 0 2 . 3 6 2 - 0 2 2	Stenotype Operator		
. . . -			

Step Twenty-Two All Users

Columns 16 and 17 GED and SVP:

Enter the "General Education Development" (GED) code and "Specific Vocational Preparation" (SVP) code assigned to each Third Edition DOT code and title listed in columns 14 and 15.* The GED code is a three-digit code which designates the amount of general education and/or life experience necessary for satisfactory performance of any given job. (R) indicates reasoning development, (M) identifies mathematics development, and (L) identifies language development.

The SVP code relates to a span of time required to learn the techniques, develop the facilities, and acquire the necessary information for average performance in a specific job.

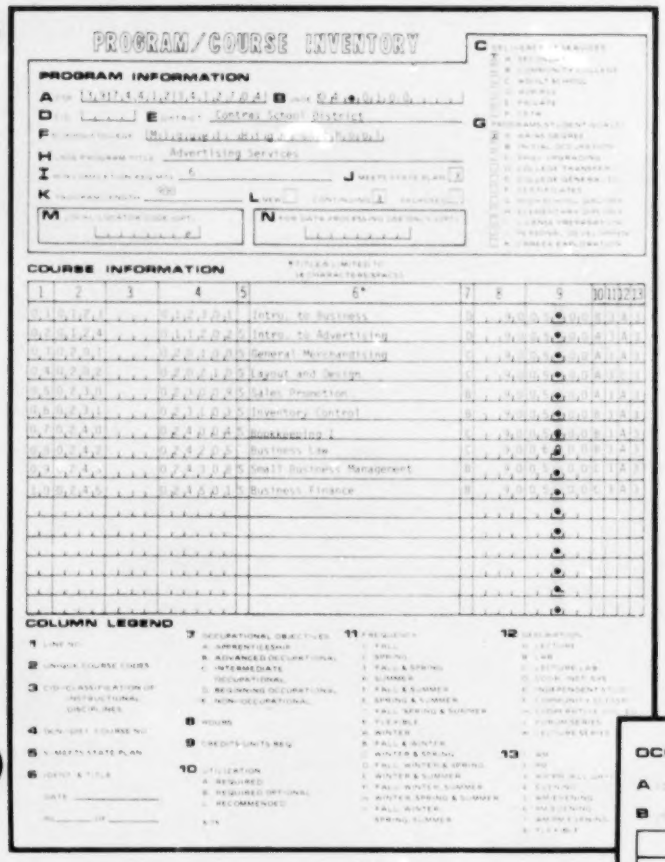
Note: The Fourth Edition Dictionary of Occupational Titles (DOT) does not contain listings of GED and SVP. Those will be published in a supplement on a date to be announced.

Both the GED and SVP codes for Third Edition DOT occupational listings are further defined in the California Manpower Management Information System Cross-Code Index, Volume I.

EXAMPLES

Examples of the Completed PCI Forms for Secondary Schools

SIDE 1


PROGRAM/COURSE INVENTORY

PROGRAM INFORMATION

A B

D E Central School District

F

H Advertising Services

I 6 J

K 900 L

M N

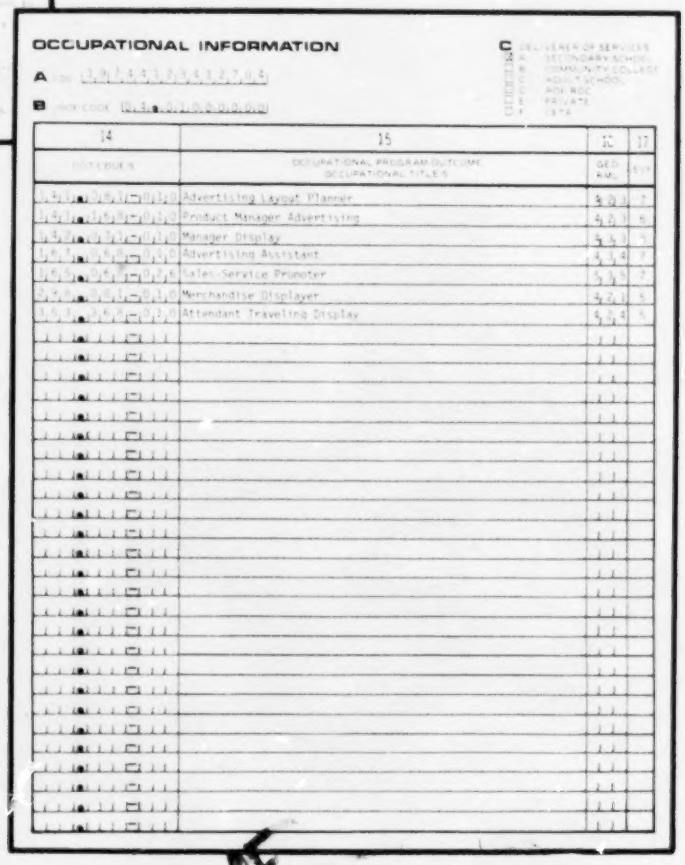
COURSE INFORMATION

1	2	3	4	5	6*	7	8	9	10	11	12	13
0,1	0,1,2,1		0,1,2,3,0,1		Intro. to Business	D	9,0	0,5	0,0	B	1	A	1
0,1	0,1,2,4		0,1,2,0,2,5		Intro. to Advertising	D	9,0	0,5	0,0	A	1	A	1
0,1	0,2,0,1		0,2,0,1,0,0		General Merchandising	C	9,0	0,5	0,0	A	1	A	1
0,4	0,2,0,2		0,2,0,2,1,0		Layout and Design	C	9,0	0,5	0,0	A	1	A	1
0,5	0,2,1,0		0,2,1,0,2,9		Sales Promotion	B	9,0	0,5	0,0	A	1	A	1
0,6	0,2,3,1		0,2,3,1,0,3		Inventory Control	B	9,0	0,5	0,0	B	1	A	1
0,7	0,2,4,0		0,2,4,0,0,4		Bookkeeping I	C	9,0	0,5	0,0	B	1	A	1
0,8	0,2,4,2		0,2,4,2,0,5		Business Law	C	9,0	0,5	0,0	B	1	A	1
0,9	0,2,4,3		0,2,4,3,0,2		Small Business Management	B	9,0	0,5	0,0	C	1	A	1
1,0	0,2,4,5		0,2,4,5,0,1		Business Finance	B	9,0	0,5	0,0	C	1	A	1

COLUMN LEGEND

The adjacent example of Side 1 of the PCI reflects information pertinent to the deliverer of the USOE program and the content and structure of the program.

SIDE 2


OCCUPATIONAL INFORMATION

A B

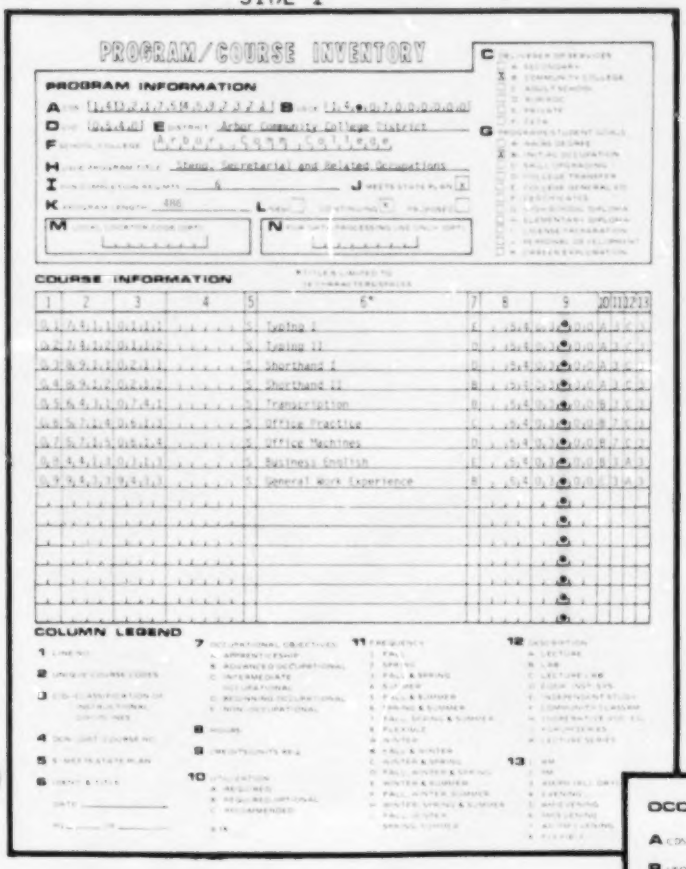
C

14	15	16	17
DOT CODE 5	OCCUPATIONAL PROGRAM OUTCOME OCCUPATIONAL TITLE 5	GED RML	EVF
1,4,1,0,6,1,0,1,0	Advertising Layout Planner	4,2,3	7
1,4,1,0,6,8,0,1,0	Product Manager Advertising	4,2,3	6
1,4,2,0,3,1,0,1,0	Manager Display	4,3,3	5
1,6,7,0,6,8,0,1,0	Advertising Assistant	4,3,4	7
1,6,5,0,6,8,0,2,6	Sales-Service Promoter	5,3,5	7
2,9,8,0,8,1,0,1,0	Merchandise Displayer	4,2,1	5
1,5,3,0,6,8,0,1,0	Attendant Traveling Display	4,2,4	5

Side 2 of the PCI displays information pertinent to the occupational objectives of the USOE program described on Side 1 of the PCI.

Example of the Completed PCI Form for Community Colleges

SIDE 1



PROGRAM/COURSE INVENTORY

PROGRAM INFORMATION

A CDS [illegible] B [illegible]

D [illegible] E District: Arbor Community College District

F [illegible]

H Occupational Area: Steno, Secretarial and Related Occupations

I [illegible] J [illegible]

K Program Length: 486 L [illegible]

M [illegible] N [illegible]

C Delivery of Services: X Community College

G Program/Student Goals: X Initial Occupation

COURSE INFORMATION

1	2	3	4	5	6*	7	8	9	10	11	12	13
0	1	0	1	1	Typing I	E	.5	0	0	0	1	1
0	2	0	1	1	Typing II	D	.5	0	0	0	2	1
0	3	0	1	1	Shorthand I	D	.5	0	0	0	3	1
0	4	0	1	1	Shorthand II	B	.5	0	0	0	4	1
0	5	0	1	1	Transcription	D	.5	0	0	0	5	1
0	6	0	1	1	Office Practice	E	.5	0	0	0	7	1
0	7	0	1	1	Office Machines	D	.5	0	0	0	8	1
0	8	0	1	1	Business English	E	.5	0	0	0	9	1
0	9	0	1	1	General Work Experience	B	.5	0	0	0	10	1

COLUMN LEGEND

1 Line No.

2 Unique Course Codes

3 CIP Classification of Instructional Courses

4 Non-Credit Course No.

5 Section Statement No.

6 Course Title

Date _____

7 Occupational Objectives: A. Apprenticeship; B. Advanced Occupational; C. Intermediate Occupational; D. Beginning Occupational; E. Non-Occupational

8 Hours

9 Credit Units

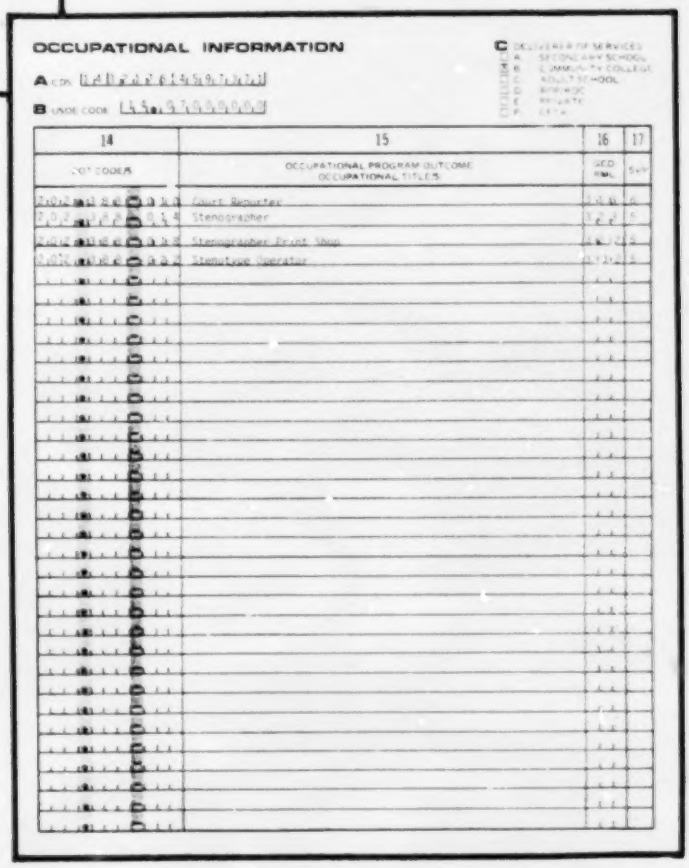
10 Utilization: A. Required; B. Required Optional; C. Recommended

11 Frequency: 1. Fall; 2. Spring; 3. Fall & Spring; 4. Summer; 5. Fall & Summer; 6. Spring & Summer; 7. Fall, Spring & Summer; 8. Flexible; 9. Winter; A. Fall & Winter; B. Winter & Spring; C. Fall, Winter & Spring; D. Winter & Summer; E. Fall, Winter & Summer; F. Winter, Spring & Summer; G. Fall, Winter, Spring, Summer

12 Description: A. Lecture; B. Lab; C. Lecture-Lab; D. Work Notes; E. Internship/Practicum; F. Community Classes; G. Cooperative Ed. Co-op; H. Flexible; I. Lecture Series

13 Day: 1. AM; 2. PM; 3. Morning (All Day); 4. Evening; 5. Afternoon; 6. Morning & Evening; 7. Afternoon & Evening; 8. Flexible

Completion of sides 1 and 2 of the PCI will address the needs and reporting requirements of numerous deliverers of service and provide the quality and consistancy of the training required by students enrolled in vocational education programs.



OCCUPATIONAL INFORMATION

A CDS [illegible]

B SOC Code: 1 5 . 9 7 0 5 0 0

C Delivery of Services: X A. Secondary School; X B. Community College; C. Adult School; D. Apprentice; E. Private; F. Other

14	15	16	17
SOC CODES	OCCUPATIONAL PROGRAM OUTCOME OCCUPATIONAL TITLES	GED Rnk	Svr
2 0 5 . 3 8 2 0 1 4	Court Reporter	1 2	1
2 0 5 . 3 8 2 0 1 4	Stenographer	1 2	1
2 0 5 . 3 8 2 0 1 4	Stenographer Front Shop	1 2	1
2 0 5 . 3 8 2 0 1 4	Stenotype Operator	1 2	1

APPENDIX A

ROP/C CENTER/DISTRICT/SCHOOL DIRECTORY

County	District	School	Name	City
01	74005	0195016	Amador Valley-Livermore Valley ROP	Pleasanton
01	74013	0195024	Eden Area Vocational Program	San Lorenzo
01	74021	0195032	Fremont-Newark ROC	Fremont
01	74039	0195040	Oakland-Emery-Piedmont ROC	Oakland
01	74187	0195057	Hayward/Newhaven ROP	Hayward
04	74682	0490011	Butte County ROP	Oroville
07	74344	0790022	Contra Costa County ROP	Pleasant Hill
08	74351	0890012	Del Norte County ROP	Crescent City
09	74377	0990010	El Dorado County ROP	Placerville
10	74153	1095017	Valley ROP	Parlier
10	74237	1090018	West San Joaquin ROP	Riverdale
10	74260	1095025	Fresno Metropolitan ROP/C	Fresno
11	74385	1190016	Glenn County ROP	Willows
12	74393	1290014	Humboldt County ROP	Eureka
13	74401	1390012	Imperial County ROP	El Centro
14	74070	1495019	Inyo County ROP	Independence
15	74161	1595016	West Side ROP	Taft
15	74286	1595024	ROC of Kern	Bakersfield
15	74369	1595032	Eastern Kern ROP	California City
16	74708	1690015	Kings County ROP	Hanford
17	74419	1790013	Lake County ROP	Lakeport
19	20198	9005489	Los Angeles Job Corp Center	Los Angeles
19	64733	1931849	Regional Occupational Program Center	Los Angeles
19	74088	1995018	La Puente Valley ROP	La Puente
19	74096	1995026	Southeast Los Angeles Co. ROP	Norwalk
19	74195	1995034	East San Gabriel ROP	West Covina
19	74245	1995042	Mt. Wilson ROP	Pasadena
19	74328	1995059	Tri-Cities ROP	Whittier
19	74336	1995067	Southern California ROC	Torrance
19	74427	1995075	Long Beach Unified School Dist. ROP	Long Beach
19	74435	1995083	Los Angeles City Unified School District ROC/P	Los Angeles
19	74443	1995091	Los Angeles County ROP	Downey
20	74203	2095016	Madera-Chowchilla ROP	Madera
20	74641	2095032	Madera County ROP	Madera

County	District	School	Name	City
21	74047	2195014	Marin Career Education Program	Corte Madera
21	74658	2190064	Marin County ROP	Corte Madera
23	74408	2390011	Mendocino County ROC/P	Ukiah
24	74476	2490019	Merced County ROP	Merced
25	74450	2590016	Modoc County ROP	Alturas
27	74054	2795011	Salinas-Gonzales-Monterrey ROP	Salinas
28	74484	2890010	Napa County ROP	Napa
30	74104	3095015	North Orange County ROP	Anaheim
30	74112	3095023	Capistrano-Laguna ROP	San Juan Capistrano
30	74120	3095031	Coastline ROP	Costa Mesa
30	74252	3095049	Central County ROP	East Orange
32	74278	3290012	Lassen-Plumas-Sierra County ROP	Quincy
33	74146	3395019	San Jacinto-Moreno ROP	Hemet
33	74492	3390028	Riverside County ROP (RIVCO)	Riverside
34	74229	3495017	Calif. Adv. Council on Voc. Ed.	Sacramento
34	74500	3490018	Sacramento County ROP	Sacramento
35	74666	3590023	Santa Clara-South County ROP	Gilroy
36	74138	3695012	Colton-Redlands-Yucaipa ROC	Redlands
36	74211	3695020	Baldy View ROP	Claremont
36	74518	3690047	San Bernardino County ROP	San Bernardino
38	74534	3890019	San Francisco County ROP	San Francisco
39	74542	3990033	San Joaquin County ROP	Stockton
40	74724	4090007	San Luis Obispo County ROP	San Luis Obispo
41	74559	4190013	San Mateo County ROP	Burlingame
43	69666	4337184	San Jose Regional Voc. Center	San Jose
43	74062	4395026	Fremont Regional Occ. Center	Sunnyvale
43	74294	4395018	San Jose Regional Voc. Center	San Jose
43	74302	4395034	Santa Clara County ROP	Sunnyvale
44	74575	4490017	Santa Cruz County ROP	Santa Cruz
45	74583	4590014	Shasta County ROP	Redding
47	74690	4790010	Siskiyou County ROP	Yreka
48	74674	4891529	Solano County ROP	Fairfield
49	74591	4990040	Sonoma County ROP	Santa Rose
50	74609	5090014	Stanislaus County ROP	Modesto
51	74633	5190012	Tri-County ROP	Yuba City

County	District	School	Name	City
52	74310	5295019	Tehama County ROP	Red Bluff
54	74179	5495015	Tulare Co. Organization for Voc. Ed.	Visalia
57	74625	5790019	Yolo County ROP	Woodland

If a CDS code for your educational facility has not been assigned, contact:

CDS Classification System
Bureau of Publications
State Department of Education
721 Capitol Mall
Sacramento, CA 95814

APPENDIX B

SOCIO-ECONOMIC REPORTS

Socio-economic Reports were prepared by the California Occupational Information System for the following Standard Metropolitan Statistical Areas (SMSA's).

Fresno
Los Angeles/Long Beach
Modesto
Oxnard/Simi/Ventura
Sacramento
San Diego
Stockton

APPENDIX C

PROGRAM/COURSE INVENTORY

PROGRAM INFORMATION

A DS _____ B USOE _____

D CID _____ E DISTRICT _____

F SCHOOL/COLLEGE _____

H USOE PROGRAM TITLE _____

I MIN COMPLETION REQ'MTS _____ J MEETS STATE PLAN ☐

K PROGRAM LENGTH _____ L NEW ☐ CONTINUING ☐ PROPOSED ☐

M LOCAL LOCATOR CODE (OPT) _____

N FOR DATA PROCESSING USE ONLY (OPT) _____

C DELIVERER OF SERVICES
- ☐ A. SECONDARY
- ☐ B. COMMUNITY COLLEGE
- ☐ C. ADULT SCHOOL
- ☐ D. ROP/ROC
- ☐ E. PRIVATE
- ☐ F. CETA

G PROGRAMS/STUDENT GOALS
- ☐ A. AA/AS DEGREE
- ☐ B. INITIAL OCCUPATION
- ☐ C. SKILL UPGRADING
- ☐ D. COLLEGE TRANSFER
- ☐ E. COLLEGE GENERAL ED.
- ☐ F. CERTIFICATES
- ☐ G. HIGH SCHOOL DIPLOMA
- ☐ H. ELEMENTARY DIPLOMA
- ☐ I. LICENSE PREPARATION
- ☐ J. PERSONAL DEVELOPMENT
- ☐ K. CAREER EXPLORATION

COURSE INFORMATION

*TITLE/S LIMITED TO 18 CHARACTERS/SPACES

1	2	3	4	5	6*	7	8	9	10	11	12	13

COLUMN LEGEND

1 LINE NO.

2 UNIQUE COURSE CODES

3 CID–CLASSIFICATION OF INSTRUCTIONAL DISCIPLINES

4 DCN–DIST. COURSE NO.

5 MEETS STATE PLAN

6 DENT. & TITLE

DATE _____

PG _____ OF _____

7 OCCUPATIONAL OBJECTIVES
- A. APPRENTICESHIP
- B. ADVANCED OCCUPATIONAL
- C. INTERMEDIATE OCCUPATIONAL
- D. BEGINNING OCCUPATIONAL
- E. NON–OCCUPATIONAL

8 HOURS

9 CREDITS/UNITS REQ.

10 UTILIZATION
- A. REQUIRED
- B. REQUIRED OPTIONAL
- C. RECOMMENDED

8-78

11 FREQUENCY
- 1. FALL
- 2. SPRING
- 3. FALL & SPRING
- 4. SUMMER
- 5. FALL & SUMMER
- 6. SPRING & SUMMER
- 7. FALL, SPRING & SUMMER
- 8. FLEXIBLE
- A. WINTER
- B. FALL & WINTER
- C. WINTER & SPRING
- D. FALL, WINTER & SPRING
- E. WINTER & SUMMER
- F. FALL, WINTER, SUMMER
- H. WINTER, SPRING & SUMMER
- J. FALL, WINTER, SPRING, SUMMER

12 DESCRIPTION
- A. LECTURE
- B. LAB
- C. LECTURE-LAB
- D. COOR. INST. SYS.
- E. INDEPENDENT STUDY
- F. COMMUNITY CLASSRM.
- H. COOPERATIVE VOC. ED.
- J. FORUM SERIES
- K. LECTURE SERIES

13
- 1. AM
- 2. PM
- 3. AM/PM (ALL DAY)
- 4. EVENING
- 5. AM/EVENING
- 6. PM/EVENING
- 7. AM/PM EVENING
- 8. FLEXIBLE

OCCUPATIONAL INFORMATION

A CDS

B USOE CODE

C DELIVERER OF SERVICES

- ☐ A. SECONDARY SCHOOL
- ☐ B. COMMUNITY COLLEGE
- ☐ C. ADULT SCHOOL
- ☐ D. ROP/ROC
- ☐ E. PRIVATE
- ☐ F. CETA

14	15	16	17
DOT CODE/S	OCCUPATIONAL PROGRAM OUTCOME OCCUPATIONAL TITLE/S	GED RML	SVP

PROGRAM/COURSE INVENTORY

PROGRAM INFORMATION

A CDS _____ B USOE _____

D CID _____ E DISTRICT _____

F SCHOOL/COLLEGE _____

H USOE PROGRAM TITLE _____

I MIN COMPLETION REQ'MTS _____ J MEETS STATE PLAN ☐

K PROGRAM LENGTH _____ L NEW ☐ CONTINUING ☐ PROPOSED ☐

M LOCAL LOCATOR CODE (OPT) _____

N FOR DATA PROCESSING USE ONLY (OPT) _____

C DELIVERER OF SERVICES
- ☐ A. SECONDARY
- ☐ B. COMMUNITY COLLEGE
- ☐ C. ADULT SCHOOL
- ☐ D. ROP/ROC
- ☐ E. PRIVATE
- ☐ F. CETA

G PROGRAMS/STUDENT GOALS
- ☐ A. AA/AS DEGREE
- ☐ B. INITIAL OCCUPATION
- ☐ C. SKILL UPGRADING
- ☐ D. COLLEGE TRANSFER
- ☐ E. COLLEGE GENERAL ED.
- ☐ F. CERTIFICATES
- ☐ G. HIGH SCHOOL DIPLOMA
- ☐ H. ELEMENTARY DIPLOMA
- ☐ I. LICENSE PREPARATION
- ☐ J. PERSONAL DEVELOPMENT
- ☐ K. CAREER EXPLORATION

COURSE INFORMATION

*TITLE/S LIMITED TO 18 CHARACTERS/SPACES

1	2	3	4	5	6*	7	8	9	10	11	12	13

COLUMN LEGEND

1 LINE NO.

2 UNIQUE COURSE CODES

3 CID–CLASSIFICATION OF INSTRUCTIONAL DISCIPLINES

4 DCN–DIST. COURSE NO.

5 S–MEETS STATE PLAN

6 TITLE/DENT. & TITLE

DATE _____

PG _____ OF _____

7 OCCUPATIONAL OBJECTIVES
- A. APPRENTICESHIP
- B. ADVANCED OCCUPATIONAL
- C. INTERMEDIATE OCCUPATIONAL
- D. BEGINNING OCCUPATIONAL
- E. NON–OCCUPATIONAL

8 HOURS

9 CREDITS/UNITS REQ.

10 UTILIZATION
- A. REQUIRED
- B. REQUIRED OPTIONAL
- C. RECOMMENDED

8-78

11 FREQUENCY
- 1. FALL
- 2. SPRING
- 3. FALL & SPRING
- 4. SUMMER
- 5. FALL & SUMMER
- 6. SPRING & SUMMER
- 7. FALL, SPRING & SUMMER
- 8. FLEXIBLE
- A. WINTER
- B. FALL & WINTER
- C. WINTER & SPRING
- D. FALL, WINTER & SPRING
- E. WINTER & SUMMER
- F. FALL, WINTER, SUMMER
- H. WINTER, SPRING & SUMMER
- J. FALL, WINTER, SPRING, SUMMER

12 DESCRIPTION
- A. LECTURE
- B. LAB
- C. LECTURE-LAB
- D. COOR. INST. SYS.
- E. INDEPENDENT STUDY
- F. COMMUNITY CLASSRM.
- H. COOPERATIVE VOC. ED.
- J. FORUM SERIES
- K. LECTURE SERIES

13
- 1. AM
- 2. PM
- 3. AM/PM (ALL DAY)
- 4. EVENING
- 5. AM/EVENING
- 6. PM/EVENING
- 7. AM/PM EVENING
- 8. FLEXIBLE

OCCUPATIONAL INFORMATION

A CDS

B USOE CODE

C DELIVERER OF SERVICES
- ☐ A. SECONDARY SCHOOL
- ☐ B. COMMUNITY COLLEGE
- ☐ C. ADULT SCHOOL
- ☐ D. ROP/ROC
- ☐ E. PRIVATE
- ☐ F. CETA

14	15	16	17
DOT CODE/S	OCCUPATIONAL PROGRAM OUTCOME OCCUPATIONAL TITLE/S	GED RML	SVP

Attachment B

VOCATIONAL EDUCATION ANALYSIS
WORKSHEET

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: USOE PROGRAM CODE: ⌊_⌊_⌊●⌊_⌊_⌊_⌊_⌋

PROGRAM/SERVICE LENGTH: PROGRAM/SERVICE LOCATION:

		1	2	3	4	5	6
		PLAN	ACTUAL	EFFECTIVENESS (COL. 2 + COL.1)	PLANNED UNIT COST (A1 ÷ B1)	ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	EFFICIENCY INDEX (COL. B-5 ÷ COL. 4)
A	COST	$	$	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: M: F:	TOTAL: M: F:		$	$	
C	COMPLETIONS	TOTAL: M: F:	TOTAL: M: F:			$	
D	PLACEMENTS	TOTAL: M: F:	TOTAL: M: F:			$	
E	COMPOSITE EFFECTIVENESS					DATE:	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3÷B5)						
A	COST	$	$	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: M: F:	TOTAL: M: F:		$	$	
C	COMPLETIONS	TOTAL: M: F:	TOTAL: M: F:			$	
D	PLACEMENTS	TOTAL: M: F:	TOTAL: M: F:			$	
E	COMPOSITE EFFECTIVENESS					DATE:	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3÷B5)						
A	COST	$	$	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: M: F:	TOTAL: M: F:		$	$	
C	COMPLETIONS	TOTAL: M: F:	TOTAL: M: F:			$	
D	PLACEMENTS	TOTAL: M: F:	TOTAL: M: F:			$	
E	COMPOSITE EFFECTIVENESS					DATE:	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3 ÷ B5)						

16

117

10/78
Side 1

STUDENTS SERVED DATE: _____ **COMPLETIONS** **PLACEMENTS**

	PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN
HANDICAPPED				HANDICAPPED				HANDICAPPED			
DISADVANTAGED				DISADVANTAGED				DISADVANTAGED			
LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING			

COMPOSITE EFFECTIVENESS: _____ AVERAGE EFFECTIVENESS: _____

STUDENTS SERVED DATE: _____ **COMPLETIONS** **PLACEMENTS**

	PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN
HANDICAPPED				HANDICAPPED				HANDICAPPED			
DISADVANTAGED				DISADVANTAGED				DISADVANTAGED			
LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING			

COMPOSITE EFFECTIVENESS: _____ AVERAGE EFFECTIVENESS: _____

STUDENTS SERVED DATE: _____ **COMPLETIONS** **PLACEMENTS**

	PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN
HANDICAPPED				HANDICAPPED				HANDICAPPED			
DISADVANTAGED				DISADVANTAGED				DISADVANTAGED			
LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING			

COMPOSITE EFFECTIVENESS: _____ AVERAGE EFFECTIVENESS: _____

VOCATIONAL EDUCATION ANALYSIS WORKSHEET

PROGRAM/SERVICE TITLE: USOE PROGRAM CODE: ___

PROGRAM/SERVICE LENGTH: PROGRAM/SERVICE LOCATION:

		1	2	3	4	5	6
		PLAN	ACTUAL	EFFECTIVENESS (COL. 2 ÷ COL. 1)	PLANNED UNIT COST (A1 ÷ B1)	ACTUAL UNIT COST (A2 ÷ B2, C2, D2)	EFFICIENCY INDEX (COL. B-5 ÷ COL. 4)
A	COST	$	$	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: M: F:	TOTAL: M: F:		$	$	
C	COMPLETIONS	TOTAL: M: F:	TOTAL: M: F:			$	
D	PLACEMENTS	TOTAL: M: F:	TOTAL: M: F:			$	
E	COMPOSITE EFFECTIVENESS					DATE:	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3÷B5)						
A	COST	$	$	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: M: F:	TOTAL: M: F:		$	$	
C	COMPLETIONS	TOTAL: M: F:	TOTAL: M: F:			$	
D	PLACEMENTS	TOTAL: M: F:	TOTAL: M: F:			$	
E	COMPOSITE EFFECTIVENESS					DATE:	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3÷B5)						
A	COST	$	$	UNUSUAL EXPENDITURES:			
B	STUDENTS SERVED	TOTAL: M: F:	TOTAL: M: F:		$	$	
C	COMPLETIONS	TOTAL: M: F:	TOTAL: M: F:			$	
D	PLACEMENTS	TOTAL: M: F:	TOTAL: M: F:			$	
E	COMPOSITE EFFECTIVENESS					DATE:	
F	AVERAGE PROGRAM EFFECTIVENESS (E÷3)						
G	PERFORMANCE RATIO [(F3 ÷ B6) x 100]			%	NOTE: PLUS OR MINUS VARIANCES FROM 1.00 or 100% SHOULD BE VIEWED WITH EQUAL CONCERN.		
H	COST-EFFECTIVENESS RATIO (F3 ÷ B5)						

10/78
Side 1

STUDENTS SERVED DATE: _____ **COMPLETIONS** **PLACEMENTS**

	PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN
HANDICAPPED				HANDICAPPED				HANDICAPPED			
DISADVANTAGED				DISADVANTAGED				DISADVANTAGED			
LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING			

COMPOSITE EFFECTIVENESS: _____ AVERAGE EFFECTIVENESS: _____

STUDENTS SERVED DATE: _____ **COMPLETIONS** **PLACEMENTS**

	PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN
HANDICAPPED				HANDICAPPED				HANDICAPPED			
DISADVANTAGED				DISADVANTAGED				DISADVANTAGED			
LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING			

COMPOSITE EFFECTIVENESS: _____ AVERAGE EFFECTIVENESS: _____

STUDENTS SERVED DATE: _____ **COMPLETIONS** **PLACEMENTS**

	PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN		PLAN	ACTUAL	EFFECTIVENESS ACTUAL ÷ PLAN
HANDICAPPED				HANDICAPPED				HANDICAPPED			
DISADVANTAGED				DISADVANTAGED				DISADVANTAGED			
LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING				LIMITED ENGLISH SPEAKING			

COMPOSITE EFFECTIVENESS: _____ AVERAGE EFFECTIVENESS: _____